CN 2610 Dual LAN Async Server

User's Manual

www.moxa.com/product

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User's Manual

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1

Introduction

Welcome to Moxa CN2610 Dual LAN Async Server, a communication server with 8/16 asynchronous RS-232 ports and one 10/100 Mbps Ethernet LAN port. CN2610 Dual LAN Async Server can be used to connect terminals, modems, printers, and other asynchronous serial devices to LAN hosts. CN2610 complies with TCP/IP and IEEE 802.3 specifications using standard Ethernet 10/100BaseT and twisted pair 10/100BaseTX cable as the physical medium.

The following topics are covered in this chapter:

- **Product Features**
  - Hardware
  - Software
- **Package Checklist**
- **Front Panel**
- **Rear Panel**
- **Bottom Label**

Product Features

Hardware

- Dual LAN ports (Ethernet auto-detection 10/100 Mbps)
- Surge protection for each serial port
- 4 MB RAM, 2 MB Flash ROM
- Tx/Rx LED for each serial port
- System Status LEDs, Ethernet Status LEDs
- 8 or 16 RJ45 RS-232 serial ports, with up to 230.4 Kbps speed

Software

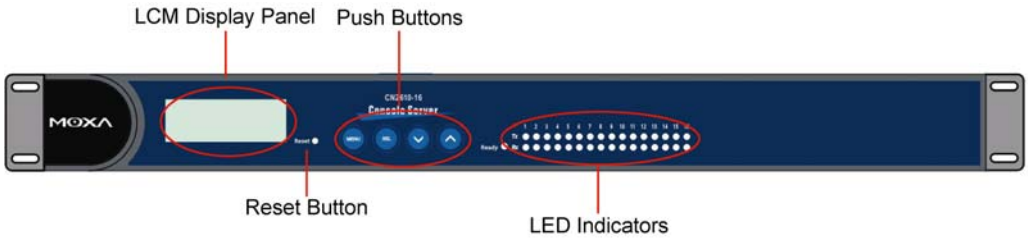
- ASCII/Binary terminal modes with max. of 8 Telnet and Rlogin sessions
- Supports Point to Point Protocol (PPP and PPPD)
- Supports Serial Line Internet Protocols (SLIP and SLIPD)
- Dynamic auto-recognition of Terminal, SLIP or PPP
- Supports Dial-on-demand, Dial-out
- Remote serial or parallel printing (RLP)
- CN2610 Async Server Proprietary Protocol (ASPP) for TCP/IP socket programming
- RAW mode for transparent data transmission
- Reverse Telnet
- SNMP Agent for network management
- Network protocols: TCP/IP, UDP, ICMP, NetBEUI, DHCP
- Application protocols: Telnet, Rlogin, Rtelnet, RAW TCP, RAW UDP, RCP, WINS,
- DRDAS™, LPD, DNS, Multi-Host
- Security protocols: RADIUS, Dial-back, PAP, CHAP, Local user / password
- Real COM port driver for Windows 95/98/ME/NT/2000/XP/2003
- Fixed TTY: SCO UNIX 3.2.x, SCO Open Server5, UnixWare 2.1.x(SVR 4.2), MITUX(SVR 4.2), SCO UnixWare 7, Linux 2.2.x, Linux 2.4.x
- Static Routing, RIP I/II protocols
- Windows-like administrative CONSOLE utility from a fixed console port, or by Telnet from a networked host
- Password protection and extensive user accounting functions
- Easy firmware upgrade via Flash ROM

Package Checklist

CN 2610 Dual LAN Async Server products are shipped with the following items:

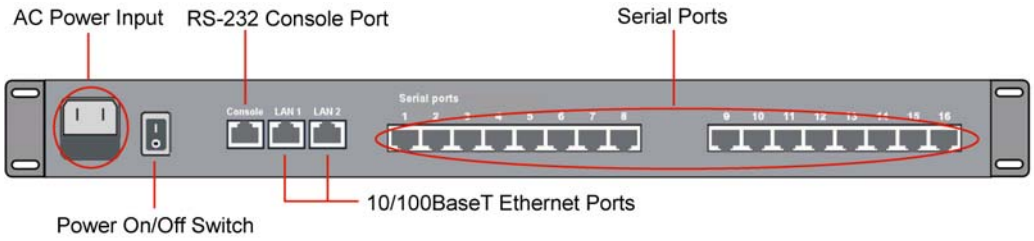
- 1 CN 2610 Dual LAN Async Server
- 1 AC power Cord
- 1CD-ROM
- Quick Installation Guide
- 1 RJ45 Loopback Tester
- Product Warranty Booklet
- Rackmount kit including 2 brackets and 8 screws
- Desktop kit including 4 pads

Front Panel



LED	Color	Description
Reset	None	If you forget the password, press this button for 5 seconds, then the password will be removed.
Ready	Red	Displays CN2610 system is powered on
Ready	Green	Displays CN2610 system is ready
Serial Tx	Green	Displays serial port transmission
Serial Rx	Yellow	Displays serial port reception

Rear Panel



Connector	Function
AC Power Input	Automatic detection of 100-240V, 47-63Hz AC power supply (CN2610-16 or CN2610-8) Automatic detection of 12-48VDC, 1.01A at 12V, 240 mA at 48V DC power supply (CN2610-16-48V or CN2610-8-48V)
Power On/Off Switch	I indicates power on; O indicates power off
RS-232 Console Port	One RJ45 female connector for console terminal connection
LAN 1	Auto detection for 10/100 Mbps UTP connection
LAN 2	Auto detection for 10/100 Mbps UTP connection
Serial Ports	One RJ45 male connector for DCE modem connection

Bottom Label

The server's serial number and MAC address is printed on a label fixed to the bottom of the server. CN2610 has 2 LAN ports, therefore has 2 MAC addresses. The MAC address is the unique hardware Ethernet address used to identify a network hardware product. Please write the number down here for later reference.

LAN 1 MAC address:_____

LAN 2 MAC address:_____

2

Getting Started

This chapter includes instructions on where and how to install CN2610 Dual LAN Async Server, and discusses both basic and advanced software configuration.

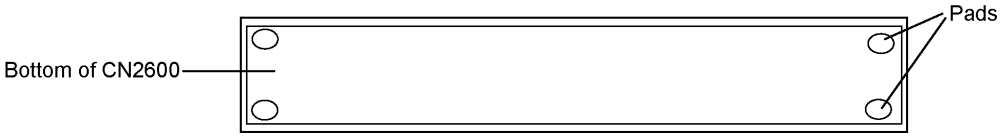
The following topics are covered:

- **Hardware Installation**
  - Desktop
  - Rackmount
  - Wiring Requirements
  - Connecting CN2610-8/16's Power
  - Connecting CN2610-8/16-48V's Power
  - Grounding CN2610-8/16-48V
  - Connecting to the Network
  - Connecting to a Serial Device
  - Connecting to a Console
- **Entering Console Utility**
  - Configuration Checklist
  - Entering Console via Telnet Terminal
  - Run Telnet Program
  - Entering Console via Console Terminal
  - Basic Server Configuration I
  - Basic Server Configuration II
  - Advanced Server Configuration
- **Save**
- **Restart**

Hardware Installation

Desktop

Place your CN2610 on a clean, flat, well-ventilated desktop. For better ventilation, attach the 4 pads from the desktop kit to the bottom of the unit, and leave some space between the CN2610 and other equipment. Do not place equipment or objects on top of the unit, as this might damage the server.



Rackmount

CN2610 is designed to be mountable in a standard 19-inch rack. Use the enclosed pair of L-shaped metal plates and screws to fasten your CN2610 to the rack cabinet. There are two options. You can lock either the front or rear panel of the CN2610 to the front of the rack. Each L-shaped plate has 6 holes, leaving two outer or inner holes open for your convenience.

Wiring Requirements

ATTENTION

Safety First!

Be sure to disconnect the power cord before installing and/or wiring your CN2610.

Wiring Caution!

ATTENTION

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.

If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

ATTENTION

Temperature Caution!

Please take care when handling CN2610. When plugged in, CN2610's internal components generate heat, and consequently the casing may feel hot to the touch.

You should also pay attention to the following points:

- Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must cross, make sure the wires are perpendicular at the intersection point.

  NOTE: Do not run signal or communication wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.

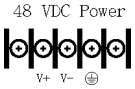
- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separate.
- Where necessary, it is strongly advised that you label wiring to all devices in the system.

Connecting CN2610-8/16's Power

Connect CN2610 100-240 VAC power line with its AC connector. If the power is properly supplied, the "Ready" LED will show a solid red color until the system is ready, at which time the "Ready" LED will change to a green color.

Connecting CN2610-8/16-48V's Power

To connect CN2610-8/16-48V's power cord with its terminal block, follow the steps given below:



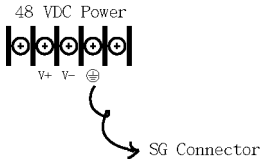
1. Loosen the screws on the V_+ and V_- terminals of CN2610-8/16-48V's terminal block.
2. Connect the power cord's 48 VDC wire to the terminal block's V_+ terminal, and the power cord's DC Power Ground wire to the terminal block's V_- terminal, and then tighten the terminal block screws. (Note: CN2610-8/16-48V can still operate even if the DC 48V and DC Power Ground are reversed.)

If the power is properly supplied, the "Ready" LED will show a solid red color until the system is ready, at which time the "Ready" LED will change to a green color.

NOTE You should use 8 kg-cm of screw torque and 22-14 AWG of suitable electric wire to connect CN2610-8/16-48V's power cord to its terminal block.

Grounding CN2610-8/16-48V

Grounding and wire routing helps limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting devices.



The Shielded Ground (sometimes called Protected Ground) contact is the second contact from the right of the 5-pin power terminal block connector located on the rear panel of CN2610-8/16-48V. Connect the SG wire to the Earth ground.

ATTENTION

This product is intended to be mounted to a well-grounded mounting surface such as a metal panel.

Connecting to the Network

Connect one end of the Ethernet cable to CN2610's 10/100M Ethernet port and the other end of the cable to the Ethernet network. There are 2 LED indicators located on the bottom left and right corners of the Ethernet connector. If the cable is properly connected, CN2610 will indicate a valid connection to the Ethernet in the following ways:

The bottom right corner LED indicator maintains a solid green color when the cable is properly connected to a 100 Mbps Ethernet network.

The bottom left corner LED indicator maintains a solid orange color when the cable is properly connected to a 10 Mbps Ethernet network.

Connecting to a Serial Device

Connect the serial data cable between CN2610 and the serial device.

Connecting to a Console

A console is a combination of keyboard and monitor, and is used to configure settings and to monitor the status of your system. If you do not have a network environment, use a terminal, a PC running UNIX, or a PC with terminal emulation software (e.g., HyperTerminal in Windows; PComm by Moxa). Use an RJ45-to-DB25 or to DB9 cable to connect the terminal to the console socket.

Entering Console Utility

Console Utility is the main application needed to set up the server/port configuration, and to execute utilities such as ping, diagnosis, monitor, and upgrade. There are two ways to enter Console Utility. One is to use terminal emulation through a console terminal, and the other is to telnet from a network terminal.

NOTE There are two ways to enter Console Utility. If your network is already setup, you can use Windows utility to find and then telnet to CN2610's IP address. If your network environment is not setup yet, you should use Moxa PComm Terminal to establish a direct console connection.

Configuration Checklist

Complete the following information table before entering Console Utility to configure your CN2610. Check with your network administrator if you do not know all of the required information.

Basic Information for CN2610

Name	
Location	
LAN1 IP address	
LAN1 IP netmask	
LAN1 default gateway IP address	
LAN2 IP address	
LAN2 IP netmask	
LAN2 default gateway IP address	
IP netmask	
Domain server 1 IP address	
Domain server 2 IP address	
WINS server IP address	
Console password	

Entering Console via Telnet Terminal

Properly connect CN2610 to your LAN and then turn on the power. Use Moxa Windows Utility to find CN2610's IP address, and then telnet to the IP address to enter the CN2610 console.

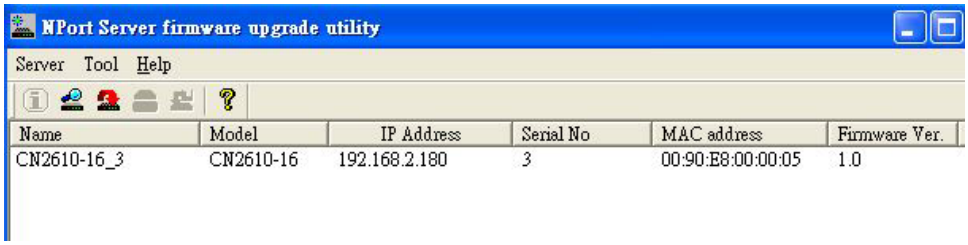
CN2610 Windows Utility

CN2610 Utility is a convenient Windows utility that can be used to find both the name and IP address of your CN2610. You can then telnet the server to complete the configuration process and to gather information about all servers on the network.

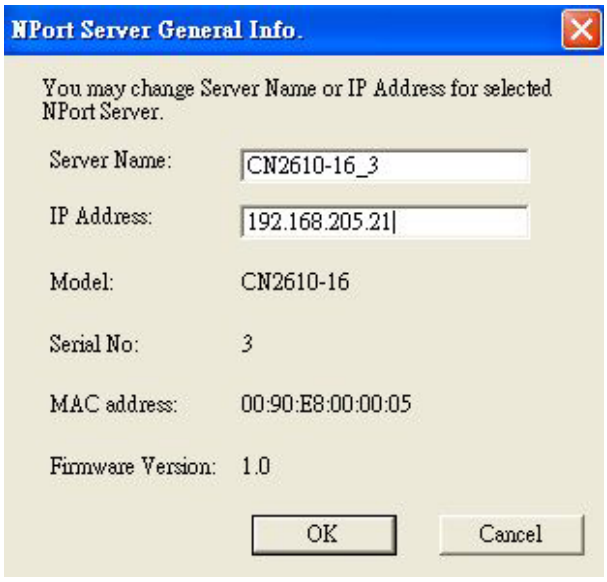
1. Run **upgrade.exe**, located on the CN2610 CD (\Software\driver\utility\upgrade.exe)

2. CN2610 Utility starts searching for all CN2610s on the network.

3. CN2610 Utility lists all available servers on the network. Note that servers in gray are password protected. Double click the server in black, or click on from the menu bar to see the server settings.


NPort Server firmware upgrade utility
Server Tool Help
Name Model IP Address Serial No MAC address Firmware Ver.
CN2610-16_3 CN2610-16 192.168.2.180 3 00:90:E8:00:00:05 1.0

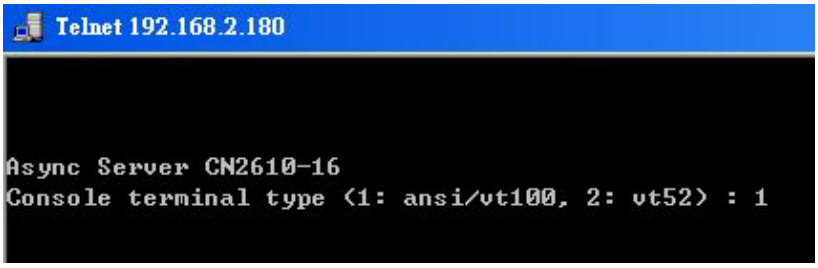
4. The server's general information is shown below. If necessary, change the settings (e.g. server IP address as 192.168.205.21), and then click **OK** to accept the configuration.



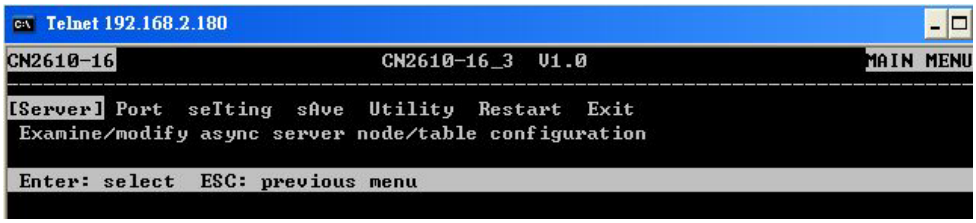
5. If you can't find the server in the list, double-check the server's power and network connections, and then use search to try locating the server again.

Run a Telnet Program

1. Telnet over the network to the server's IP address. Choose **ansi/vt100** and press **Enter**



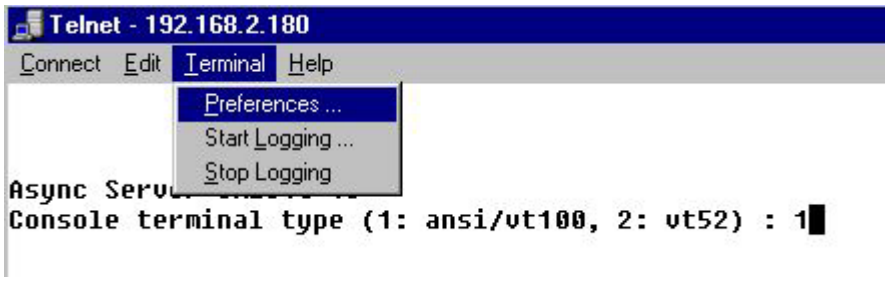
2. CN2610's **MAIN MENU** is shown below.

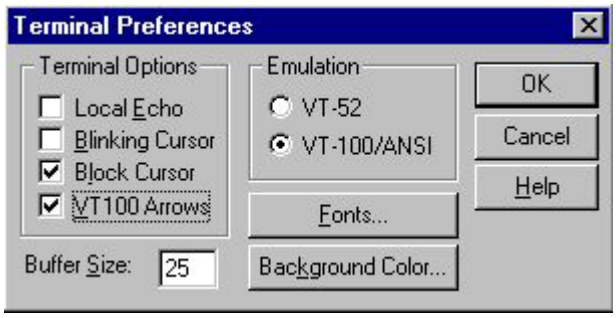


3. Familiarize yourself with the cursor movement functions before starting the configuration process.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

NOTE If you have problems using the arrow keys to move the cursor, click on the Terminal menu, choose Preferences, and then select VT100 Arrows in the Terminal Preferences window. Press OK to go back to the Main Menu, and then it can work properly now.

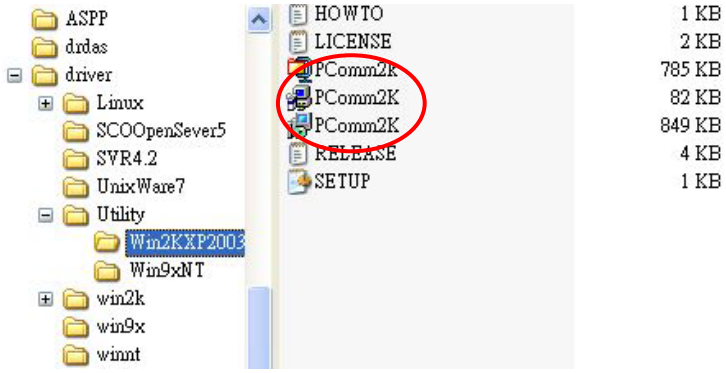




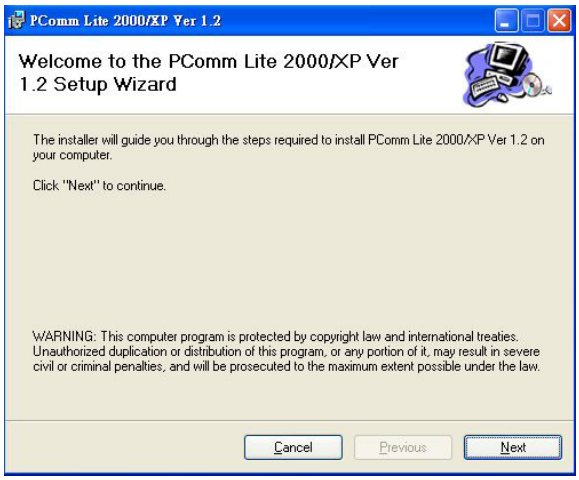
Entering Console via Console Terminal

If you do not know the CN2610's IP address, or it is not possible to use Telnet, you can instead use a direct console connection to enter the CN2610 console. First find a terminal emulation program for the console PC, such as HyperTerminal, which provides terminal emulation programs for Windows. However, we recommend using Moxa PComm Terminal Emulator, which is included on the CN2610 CD. You simply need to run the **pcterm.exe** program.

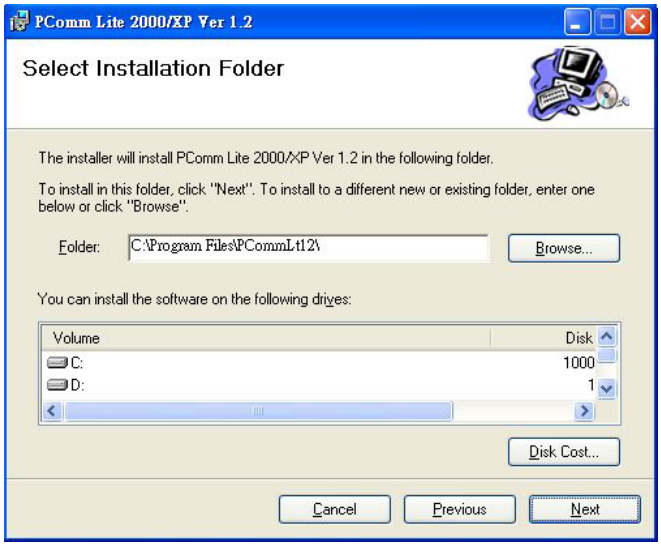
1. If you are using Windows 9x/ME/NT, run **PComm26.exe** from the directory of Win9xNT. If you are using Windows 2000/XP/2003, run **PComm2K.exe** from the directory of Win2kXP2003.



2. Click on **Next** to Continue.

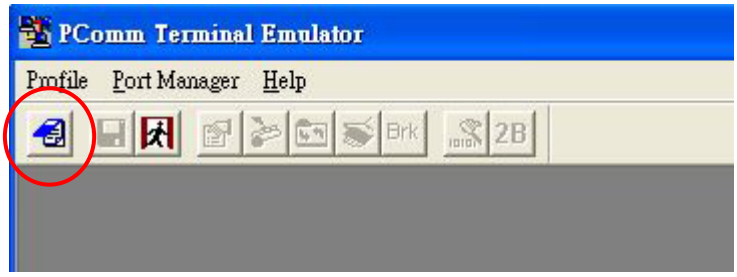

PComm Lite 2000/XP Ver 1.2
Welcome to the PComm Lite 2000/XP Ver 1.2 Setup Wizard
The installer will guide you through the steps required to install PComm Lite 2000/XP Ver 1.2 on your computer.
Click "Next" to continue.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
Previous
Next

3. Select a directory in which to install CN2610 Utility and click on **Next** to accept. Then click on **Next** again to confirm and start.

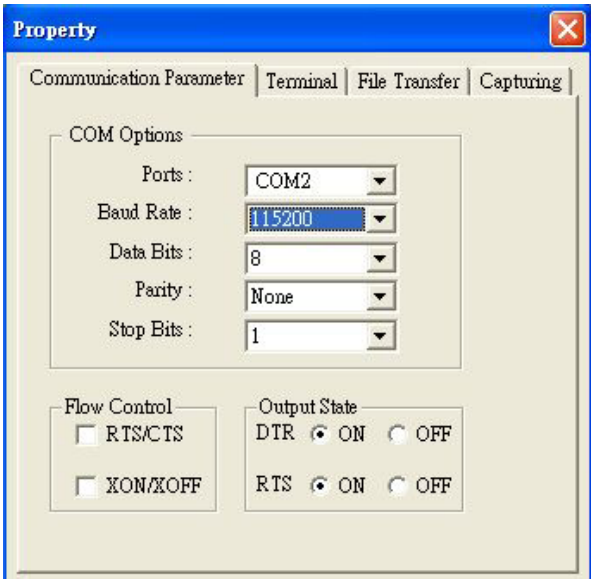


4. When the installation is complete, run **Start→Programs→PComm Terminal Emulator**.

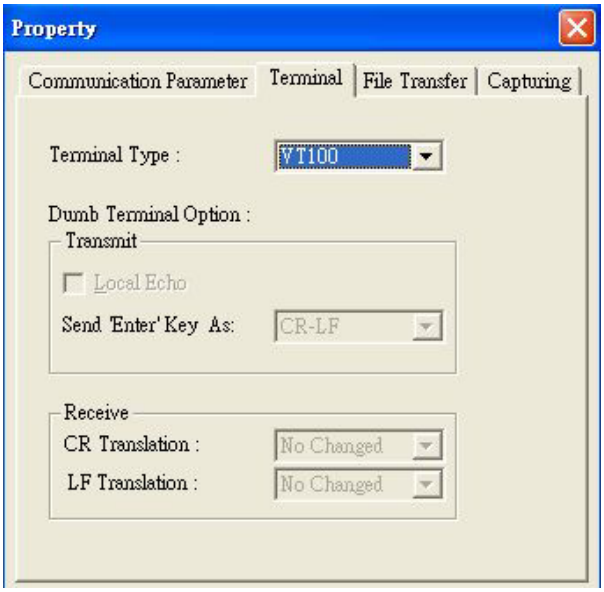
5. Use an RJ45 to DB25 female cable to connect to the CN2610 console port. Turn on CN2610, start PComm Terminal, and then open a new connection by clicking on the icon indicated below.



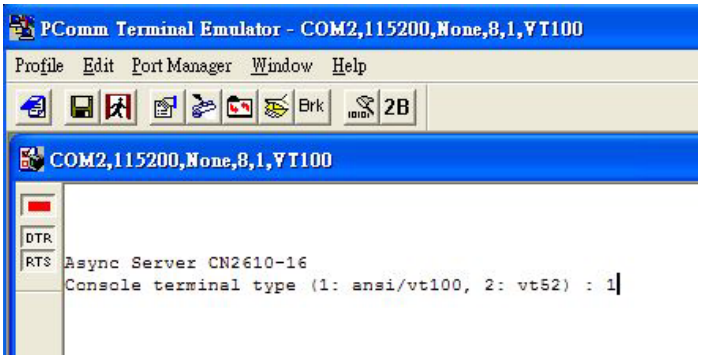
6. In **Communication Parameter**, select **COM2** for console connection, **115200** for Baud Rate, **8** for Data Bits, **None** for Parity, and **1** for Stop Bits.



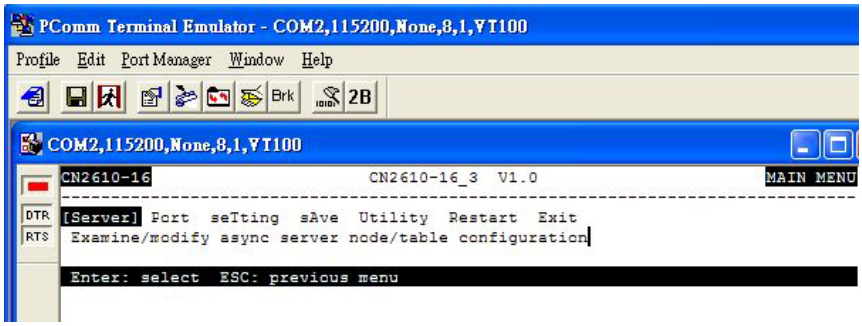
7. In **Terminal**, select **VT100** for terminal type. Press **Enter** to confirm.



8. Type 1 to select **ansi/VT100** terminal type, and press **Enter** to enter **MAIN MENU**.



9. You may use **View→ Font** to choose a different font display for **MAIN MENU**.


PComm Terminal Emulator - COM2,115200,None,8,1,VT100
Profile Edit Port Manager Window Help
COM2,115200,None,8,1,VT100
CN2610-16 CN2610-16_3 V1.0 MAIN MENU
[Server] Port seTting sAve Utility Restart Exit
Examine/modify async server node/table configuration
Enter: select ESC: previous menu

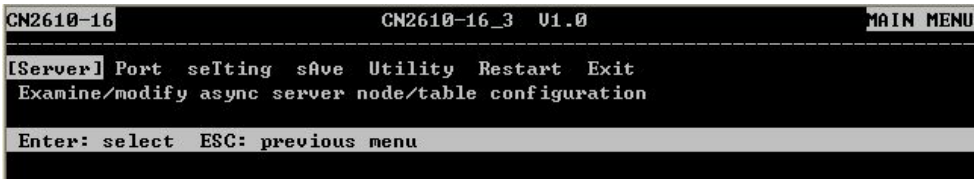
10. After entering CN2610's **MAIN MENU**, use the following keys to move and select. Familiarize yourself with these cursor movement functions before we start the configuration process.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

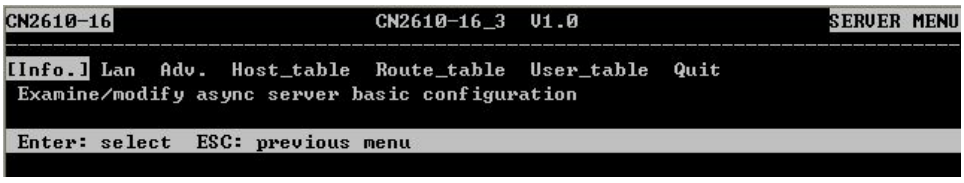
Basic Server Configuration

After learning how to enter Console Utility and CN2610 Utility, you can start to configure basic information for your CN2610. First enter Console Utility by either using a console terminal or Telnet terminal, as illustrated earlier in this chapter.

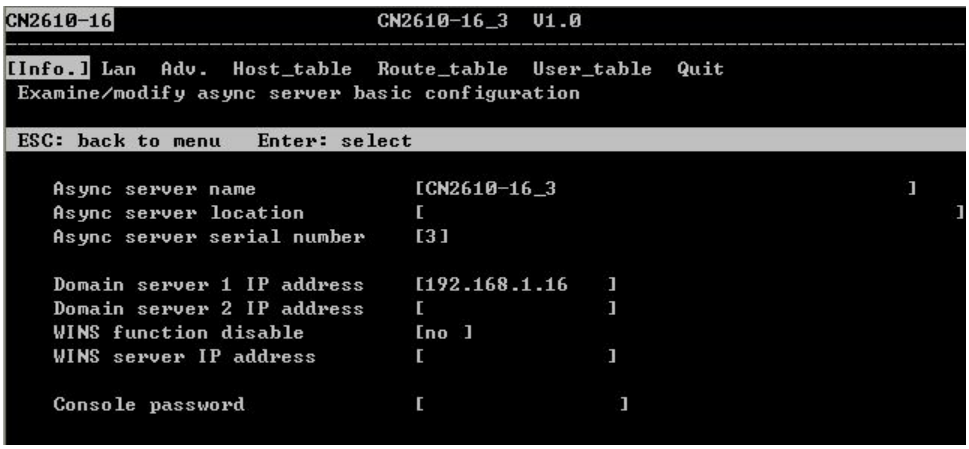
1. In **MAIN MENU**, use the arrow keys to select **Server**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
[Server] Port seTting sAve Utility Restart Exit
Examine/modify async server node/table configuration
Enter: select ESC: previous menu

2. In **SERVER MENU**, select **Info.**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 SERVER MENU
[Info.] Lan Adv. Host_table Route_table User_table Quit
Examine/modify async server basic configuration
Enter: select ESC: previous menu

3. In **Info.**, you must change the name, IP address, netmask, and any other information on your checklist (use the arrow keys to move the cursor). Press **Esc** to return to **SERVER MENU**.


CN2610-16 CN2610-16_3 V1.0
[Info.] Lan Adv. Host_table Route_table User_table Quit
Examine/modify async server basic configuration
ESC: back to menu Enter: select
Async server name [CN2610-16_3]
Async server location [ ]
Async server serial number [3]
Domain server 1 IP address [192.168.1.16]
Domain server 2 IP address [ ]
WINS function disable [no]
WINS server IP address [ ]
Console password [ ]

Async server name-This field contains the name of this CN2610. CN2610 uses this name to identify itself when requested by an SNMP station or UNIX host. The name should be an ASCII string with length no more than 40 characters. Spaces are allowed.

Async server location-This field contains the location of this CN2610. CN2610 will report this location to the SNMP station when requested. The name should be an ASCII string with length no more than 44 characters. Spaces are allowed.

Async server serial number-Each CN2610 Async Server has its own unique serial number.

Domain server 1/2 IP address-A Domain Name Server is a network host that contains information about host name to IP address translations. One host can request another host's address from the Domain Name Server. The two fields contain the IP address of the primary and secondary Domain Name Server. When a user tries to make a connection, CN2610 first checks the host table defined in [Host] menu. If there is no matching entry, CN2610 sends a query to the Domain Name Server.

WINS function disable-to enable WINS server or disable WINS server. The default setting is "enable".

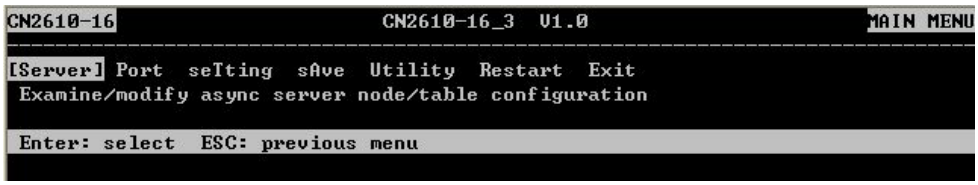
WINS server IP address-The WINS (Windows Name Server) Server contains a dynamic database to map computer names to IP addresses. Microsoft Windows computers can send name resolution to the WINS server. WINS makes use of NetBIOS over TCP/IP mode of operation. Although TCP/IP protocol software uses IP addresses, users use symbolic names, such as computer names, to identify the computers on the network. If there is a WINS Server in the network, this field can assign an IP address to it.

Console password-If you specify a password, you will need to enter it every time you want to use Console Utility. Write down the password. If you accidentally lose it, you will need to use the reset password button to reset it. You should only use the console password when absolutely necessary.

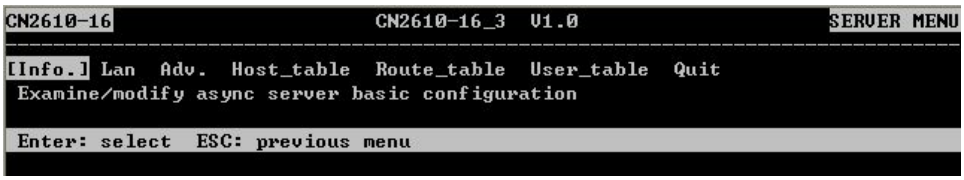
NOTE Write your console password in a safe place before setting it.

Basic Server Configuration II

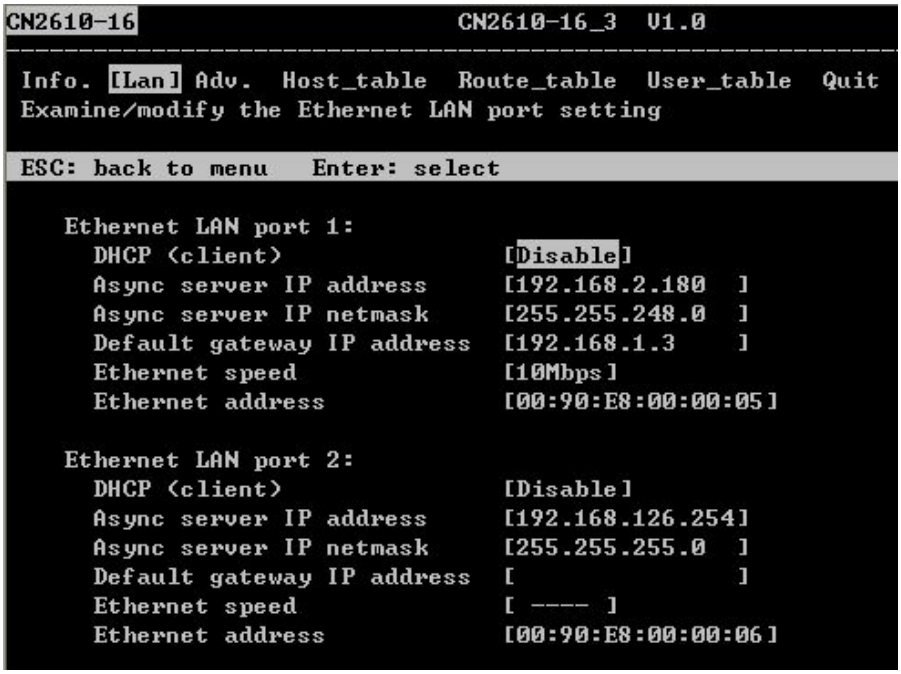
1. In **MAIN MENU**, use the arrow keys to select **Server**, and then press **Enter**.



2. In **SERVER MENU**, select **Lan**, and then press **Enter**.



3. In **Lan**, you must change the IP address, netmask, and any other information on your checklist (use the arrow keys to move the cursor). Press **Esc** to return to **SERVER MENU**.


CN2610-16
CN2610-16_3 V1.0
Info. [Lan] Adv. Host_table Route_table User_table Quit
Examine/modify the Ethernet LAN port setting
ESC: back to menu Enter: select
Ethernet LAN port 1:
DHCP (client) [Disable]
Async server IP address [192.168.2.180]
Async server IP netmask [255.255.248.0]
Default gateway IP address [192.168.1.3]
Ethernet speed [10Mbps]
Ethernet address [00:90:E8:00:00:05]
Ethernet LAN port 2:
DHCP (client) [Disable]
Async server IP address [192.168.126.254]
Async server IP netmask [255.255.255.0]
Default gateway IP address [ ]
Ethernet speed [----]
Ethernet address [00:90:E8:00:00:06]

Ethernet LAN port 1:

DHCP (client)-to enable or disable DHCP function. When DHCP is enabled, CN2610 will initiate the connection with the DHCP Server over the network, and the DHCP Server will assign an available IP address and Netmask to CN2610 LAN1. If there is no available IP address, CN2610 LAN1 will use the original IP address, and keep sending request to the DHCP Server.

Async Server IP address-this field MUST contain an IP address unique to the network. The IP address is written using the notation "ddd.ddd.ddd.ddd", in which each 'ddd' is a nonnegative decimal number less than 256 (i.e., an 8-bit integer). The default value is 192.168.127.254.

Async Server IP netmask-This field contains the server Ethernet IP network mask pattern. 'Blank' means the network mask depends on IP address classes. For example, if the IP address is 192.168.127.254, belonging to class C, the network mask should be set to 255.255.255.0.

Default gateway IP address-This field is the IP address of a router on the local network. The default gateway is used when a packet is sent to an IP address that is not on the local network and not specified in CN2610's local routing table.

Ethernet speed-The Ethernet interface is 10BaseT or 100BaseT. Depending on the physical connection, the interface is selected automatically when the power is turned on, with the default set at 10BaseT. Modification of this field is not allowed.

Ethernet address-This field contains the hardware Ethernet address. Modification of this field is not allowed.

Ethernet LAN port 2:

DHCP (client)-to enable or disable DHCP function. When DHCP is enabled, CN2610 will initiate the connection with the DHCP Server over the network, and the DHCP Server will assign an available IP address and Netmask to CN2610 LAN1. If there is no available IP address, CN2610 LAN1 will use the original IP address, and keep sending request to the DHCP Server.

Async Server IP address-this field MUST contain an IP address unique to the network. The IP address is written using the notation "ddd.ddd.ddd.ddd", in which each 'ddd' is a nonnegative decimal number less than 256 (i.e., an 8-bit integer). The default value is 192.168.127.254.

Async Server IP netmask-This field contains the server Ethernet IP network mask pattern. 'Blank' means the network mask depends on IP address classes. For example, if the IP address is 192.168.127.254, belonging to class C, the network mask should be set to 255.255.255.0.

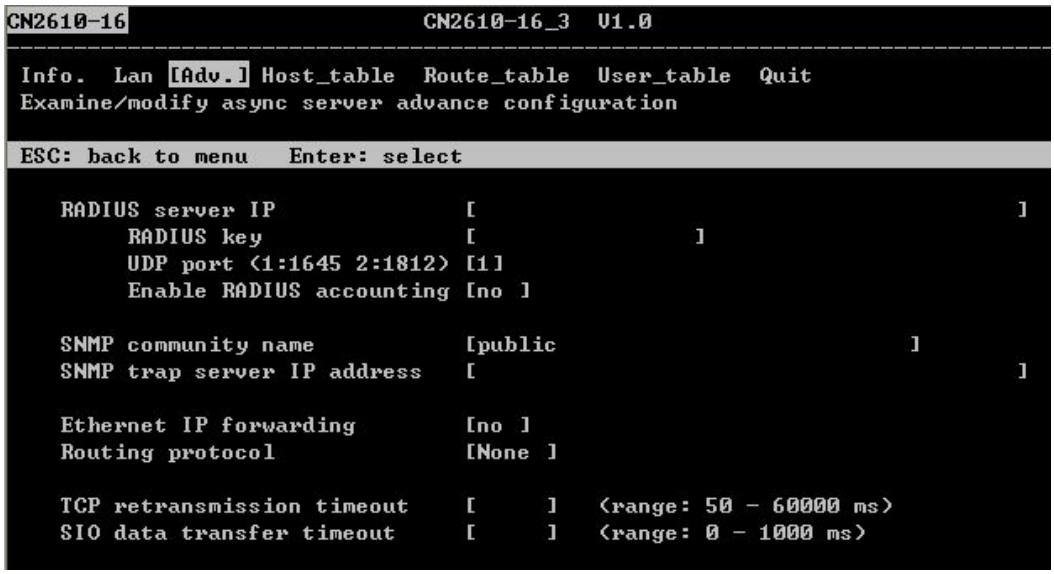
Default gateway IP address-This field is the IP address of a router on the local network. The default gateway is used when a packet is sent to an IP address that is not on the local network and not specified in CN2610's local routing table.

Ethernet speed-The Ethernet interface is 10BaseT or 100BaseT. Depending on the physical connection, the interface is selected automatically when the power is turned on, with the default set at 10BaseT. Modification of this field is not allowed.

Ethernet address-This field contains the hardware Ethernet address. Modification of this field is not allowed.

Advanced Server Configuration

If you have settings for RADIUS, SNMP, or Routing, select **Adv.** and press **Enter**.


CN2610-16 CN2610-16_3 V1.0
Info. Lan [Adv.] Host_table Route_table User_table Quit
Examine/modify async server advance configuration
ESC: back to menu Enter: select
RADIUS server IP [ ]
RADIUS key [ ]
UDP port (1:1645 2:1812) [1]
Enable RADIUS accounting [no]
SNMP community name [public]
SNMP trap server IP address [ ]
Ethernet IP forwarding [no]
Routing protocol [None]
TCP retransmission timeout [ ] (range: 50 - 60000 ms)
SIO data transfer timeout [ ] (range: 0 - 1000 ms)

RADIUS server IP-This field contains the IP address of the RADIUS server. RADIUS is short for Remote Authentication Dial-up User Service, and is used to authenticate remote Dial-up users connecting from any ISP (Internet Service Provider). Skip this field if you do not have a RADIUS server on your network.

Windows NT includes RADIUS software. For UNIX-based platforms use the RADIUS software provided by Moxa (see the CN2610 CD). Please refer to Appendix B for more information.

NOTE The RADIUS server and CN2610 SHOULD be able to communicate. To verify this, make sure that the two servers can successfully ping each other.

RADIUS key-This is a shared key for RADIUS protocol. If you have a RADIUS server, you will have to create a password here.

UDP port (1:1645 2:1812)-Two choices are available for RADIUS UDP port numbers. The early deployment of RADIUS was done using port number 1645, but this later conflicted with the RFC standard. The officially assigned port number for RADIUS is now 1812. We recommend, however, that you use the old RADIUS server UDP port number of 1645, since many companies still use it. Check the UDP port number in your RADIUS server software to determine the proper choice.

Enable RADIUS accounting-The default for this field is `yes`. If your RADIUS Server does not offer this function, please set it to `No`.

SNMP community name-The SNMP community name can be used to guarantee minimal security for SNMP communication. Only SNMP stations with the same community name can access SNMP agents like Async Server. Choose a community name with no more than 16 ASCII characters. The default name is 'public'.

SNMP trap server IP address-This field specifies the IP address of the SNMP trap server. CN2610 will report to the SNMP trap server each time it restarts the unit. You may skip this if no SNMP is needed.

Ethernet IP forwarding-CN2610 is able to process forwarding packets between different segments within TCP/IP-based networks. When enabled, CN2610 will use its Ethernet routing ability to recognize an incoming packet that requires further forwarding action.

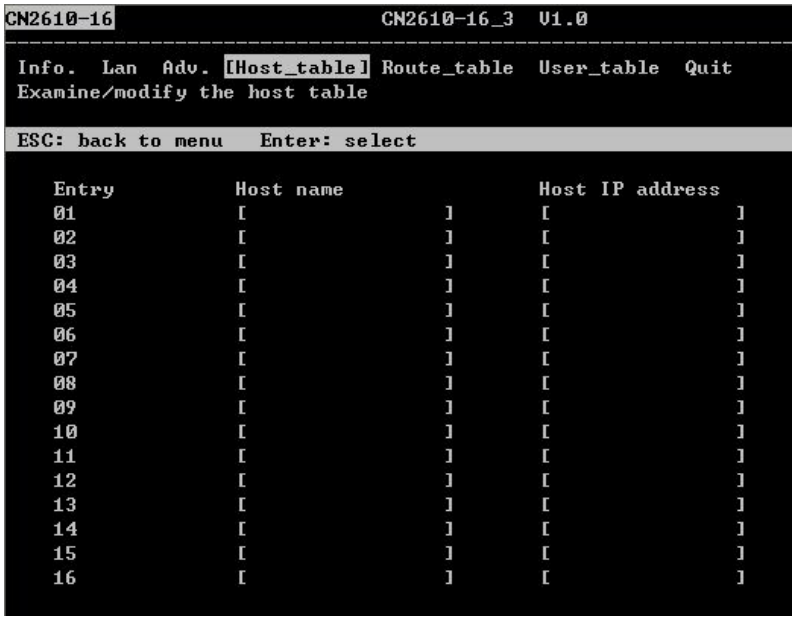
Routing protocol-CN2610 supports RIP (Routing Information Protocol) versions 1 and 2, a widely used protocol specifying how routers exchange routing table information. With RIP, routers (or CN2610s) periodically exchange entire tables.

TCP retransmission timeout-This field is used to control the time CN2610 waits to retransmit after a transmission failure occurs.

SIO data transfer timeout-This field defines the time CN2610 waits to send serial data to the Ethernet. The unit is milliseconds. Decreasing the timeout setting increases the efficiency.

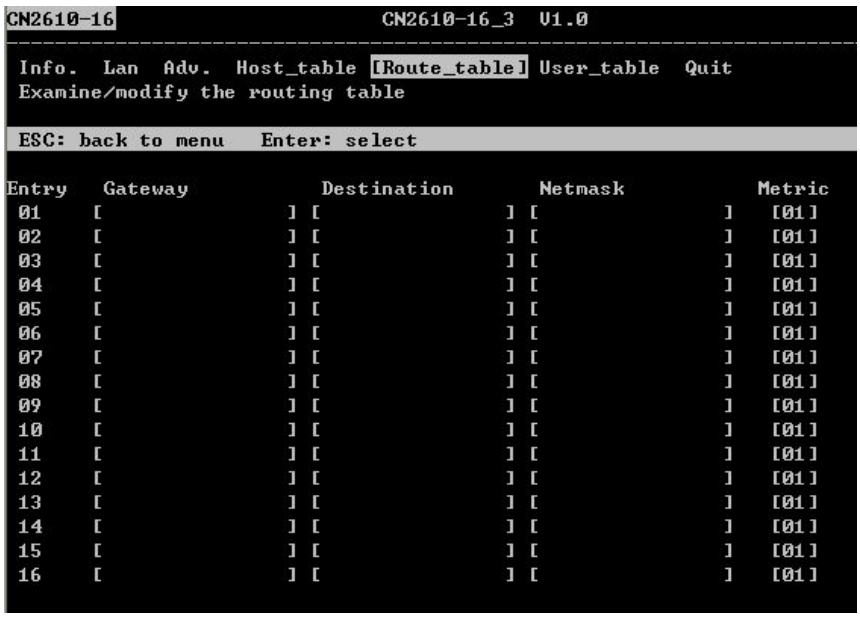
Host Table

The **Host_table** is used to edit frequently referred to host names and their corresponding IP addresses. The advantage is that you can easily refer to a host by name instead of by IP address. The host table can hold up to 16 [Host name]-[Host IP address] entries.


CN2610-16
CN2610-16_3 V1.0
Info. Lan Adv. [Host_table] Route_table User_table Quit
Examine/modify the host table
ESC: back to menu Enter: select
Entry Host name Host IP address
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16

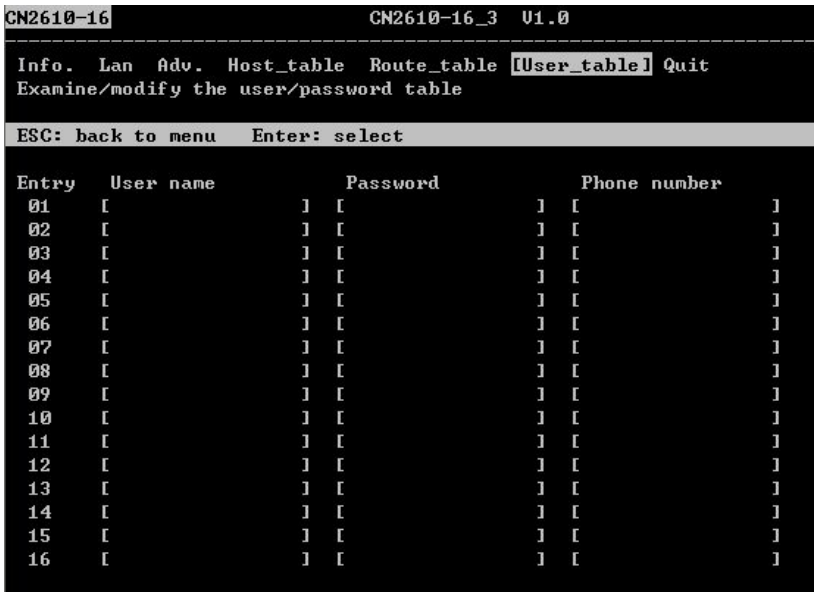
Route Table

The **Route_table** is designed to specify routing parameters. **Gateway** specifies the gateway IP address or the interface source IP address that data packets should be sent to. **Destination** specifies the IP address of a host or network that the route is connecting to. **Netmask** specifies the mask pattern of the destination network. **Metric** indicates the number of hops from source to the destination. Refer to chapter 14 for routing settings.


CN2610-16
CN2610-16_3 V1.0
Info. Lan Adv. Host_table [Route_table] User_table Quit
Examine/modify the routing table
ESC: back to menu Enter: select
Entry Gateway Destination Netmask Metric
01 [ ] [ ] [ ] [01]
02 [ ] [ ] [ ] [01]
03 [ ] [ ] [ ] [01]
04 [ ] [ ] [ ] [01]
05 [ ] [ ] [ ] [01]
06 [ ] [ ] [ ] [01]
07 [ ] [ ] [ ] [01]
08 [ ] [ ] [ ] [01]
09 [ ] [ ] [ ] [01]
10 [ ] [ ] [ ] [01]
11 [ ] [ ] [ ] [01]
12 [ ] [ ] [ ] [01]
13 [ ] [ ] [ ] [01]
14 [ ] [ ] [ ] [01]
15 [ ] [ ] [ ] [01]
16 [ ] [ ] [ ] [01]

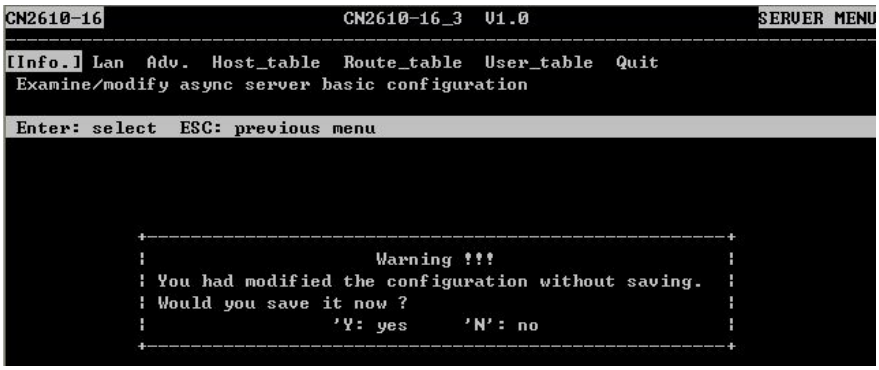
User Table

The **User_table** is used for local authentication in Dial-up/out access. The CN2610 User Table, which holds information for up to 64 users, can be used if you do not have an external RADIUS server for authentication.

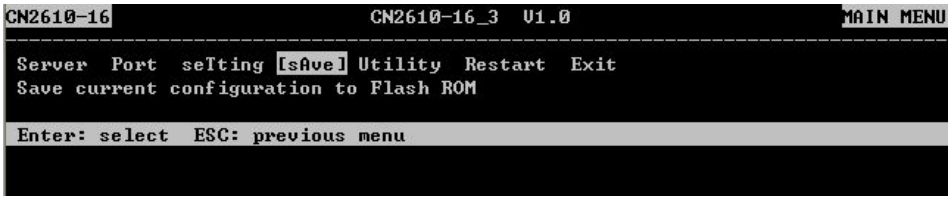

CN2610-16
CN2610-16_3 V1.0
Info. Lan Adv. Host_table Route_table [User_table] Quit
Examine/modify the user/password table
ESC: back to menu Enter: select
Entry User name Password Phone number
01 [ ] [ ] [ ]
02 [ ] [ ] [ ]
03 [ ] [ ] [ ]
04 [ ] [ ] [ ]
05 [ ] [ ] [ ]
06 [ ] [ ] [ ]
07 [ ] [ ] [ ]
08 [ ] [ ] [ ]
09 [ ] [ ] [ ]
10 [ ] [ ] [ ]
11 [ ] [ ] [ ]
12 [ ] [ ] [ ]
13 [ ] [ ] [ ]
14 [ ] [ ] [ ]
15 [ ] [ ] [ ]
16 [ ] [ ] [ ]

Save

1. Press **Y** to save previous settings when exiting **SERVER MENU**.

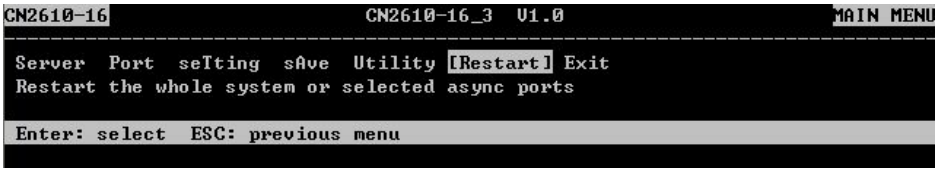

CN2610-16 CN2610-16_3 V1.0 SERVER MENU
[Info.] Lan Adv. Host_table Route_table User_table Quit
Examine/modify async server basic configuration
Enter: select ESC: previous menu
Warning !!!
You had modified the configuration without saving.
Would you save it now ?
'Y': yes 'N': no

2. You may also save at a later time. In **MAIN MENU**, select **sAve** to save all changed settings, and then press **Enter** to confirm.

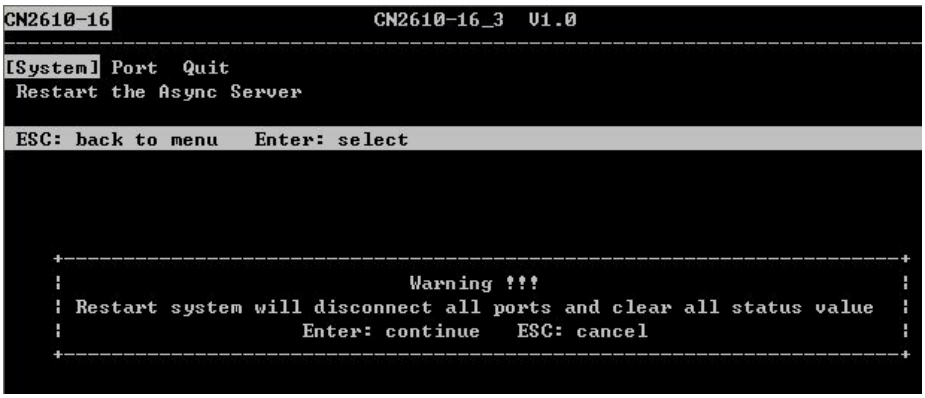

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port seTting [sAve] Utility Restart Exit
Save current configuration to Flash ROM
Enter: select ESC: previous menu

Restart

1. In **MAIN MENU**, select **Restart**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port seTting sAve Utility [Restart] Exit
Restart the whole system or selected async ports
Enter: select ESC: previous menu

2. Select **System** and then press **Enter** to continue.


CN2610-16 CN2610-16_3 V1.0
[System] Port Quit
Restart the Async Server
ESC: back to menu Enter: select
Warning !!!
Restart system will disconnect all ports and clear all status value
Enter: continue ESC: cancel

3. The system will restart and the Telnet/Console session will terminate.

3

Knowing Your Application

This chapter discusses a variety of applications for CN2610 Async Server. Refer to the following diagrams to see which application matches your own. Determining your application will help you save time configuring both the hardware and software.

CN2610 is a Async Server that can multitask, supporting various operation modes for different serial ports. The examples in this chapter will explain each operation mode in details. Users can use a combination of various operation modes according to the nature of each application.

The operation modes written in the brackets after each application are actual operation modes used when configuring CN2610s. For example, the operation mode of Windows Real COM application is NT Real COM mode.

The following topics are covered:

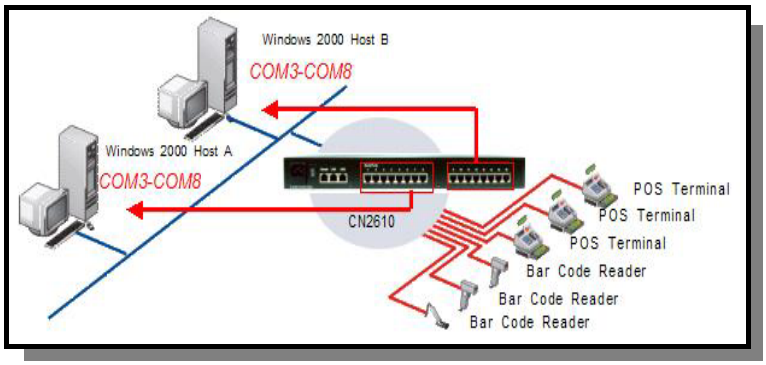
- **Windows Real COM/Linux Real TTY/Unix Fixed TTY (NT Real COM mode)**
- **Device Control (ASPP, RAW mode)**
- **UDP Communication (RAW UDP mode)**
- **Dual-host Redundant Data Acquisition System (DRDAS mode)**
- **Console Management (Rtelnet mode)**
- **Terminal Access (ASCII, BIN mode)**
- **Multi-host TTY (Fix TTY mode)**
- **Dial-in/out of Band Management (PPP/SLIP mode)**
- **Network Printer (RAW/LPD mode)**
- **Multiplexor Access (Term_BIN/Rtelnet mode)**

Windows Real COM (NT Real COM mode)

Moxa offers the COM port driver for the whole series of Windows to control Moxa CN2610 Async Server's serial ports. Through CN2610 Async Server, many applications that implemented serial boards can be enhanced to an Ethernet environment without modifying the software they are using right now. The original software can still be used to control COM3, COM4 and COM5.

By using the Real COM driver provided by Moxa, users can control and operate these serial ports as Windows' local Real COM ports.

More than 1 PC as shown below can use CN2610's serial ports. Refer to chapter 4 for more details about Windows Real COM port driver.



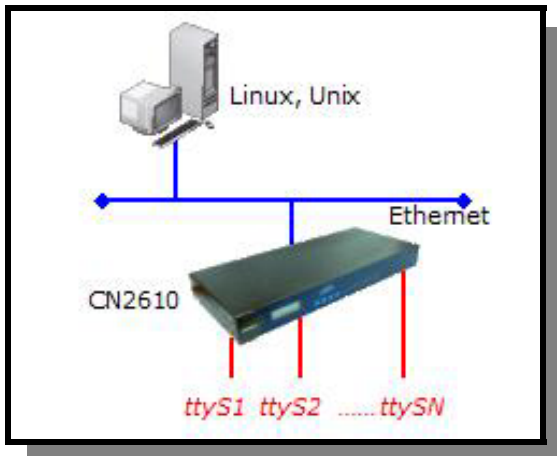
Linux Real TTY/Unix Fixed TTY (NT Real COM mode)

In the Linux environment, Moxa offers Real TTY port driver for serial ports, which allows you to easily control CN2610 Async Servers' serial ports. Through CN2610 Async Server, many applications that implemented serial boards can be enhanced to an Ethernet environment without modifying the software they are using right now. The original software can still be used to control TTYS0, TTYS1 and TTYS2.

By using the Real TTY driver provided by Moxa, users can control and operate these serial ports as Linux' local Real TTY ports. Refer to chapter 4 for more details about Linux Real TTY port driver.

In the Unix environment, Moxa offers Fixed TTY port driver. By using this software, users can use and operate CN2610s' serial port as Unix local TTY ports.

Compared with Unix Fixed TTY, the TTY ports installed by Linux Real TTY port driver can have better control over the data transmission of serial ports and modem signals, such as DTR, DSR, RTS, and CTS. Moxa offers Fixed TTY driver for Unix users. Fixed TTY driver can provide software reception and transmission function for serial ports. Compared to Real TTY, Fixed TTY cannot provide control ability over modem signals (DTR, DSR, RTS, and CTS).



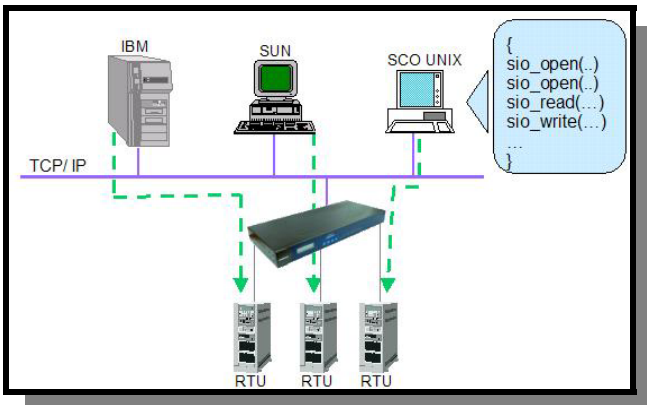
Device Control (ASPP, RAW mode)

For Device Control application, users can use standard Linux/Unix Socket programming in Linux/Unix or WinSock programming in the Windows environment to directly control devices' data transmission. In this application, users use the standard Socket programming to communicate with the CN2610, and the operation mode used is TCP RAW mode, focusing only on data transmission without serial port control or serial modem signals control. Users can also use ASPP protocol, exclusively provided by Moxa, to communicate with the CN2610.

Whether users use Linux/Unix Socket programming or Windows WinSock programming, IP is used as the communication agent between hosts and devices. The only difference is whether users need ASPP to set up communication parameters or modem signals.

If applications do not need to set up communication parameters, for example Baud rate, Parity, etc., TCP RAW mode is a good solution to purely handle the serial data communications.

If applications need to set up communication parameters or control the modem signals, like DTR, RTS, Break, etc., application software can use Moxa's ASPP lib. to ease the programming without really understand the protocol or behavior to communicate with CN2610. Refer to chapter 5 for more detail information and configuration instructions.

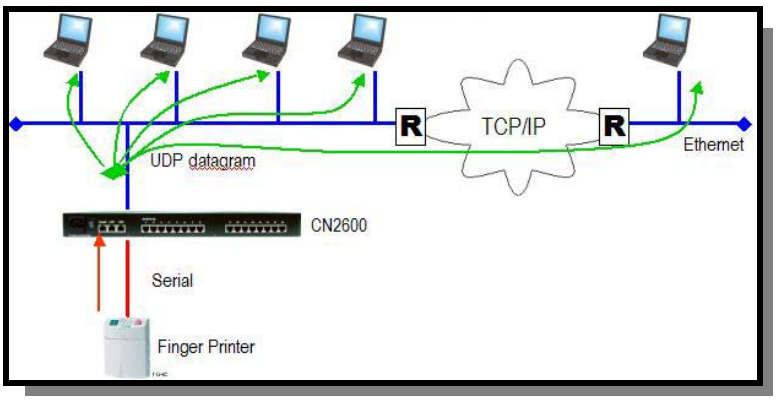


UDP Communication (RAW UDP mode)

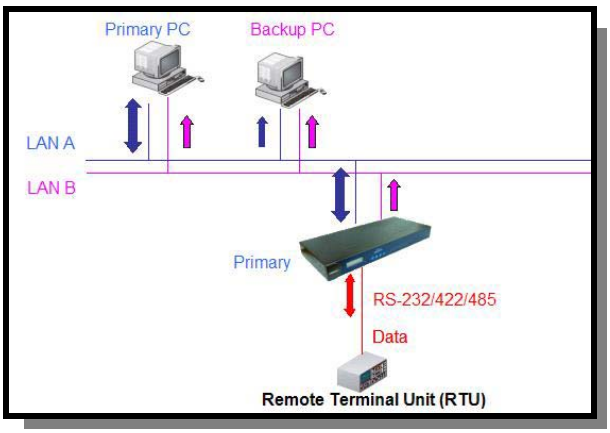
UDP is a non connection-oriented data transmission method. UDP has advantages of high speed and high data transmission efficiency, eliminating TCP's handshaking process. But it comes with the price of sacrificing data integrity. UDP doesn't have the functions of re-assembling and retransmitted packets like TCP when data is missing. When data needs to be transmitted fast to the Ethernet, and application software at the upper level can be responsible for data's correctness, the UDP is a very ideal transmission method.

In addition, UDP can also use broadcasting or multicasting technologies to handle point to multi-point transmissions. UDP is an ideal transmission way when a serial device needs to transmit data to another group of devices or PCs.

Refer to chapter 6 for detailed information and configuration instructions.



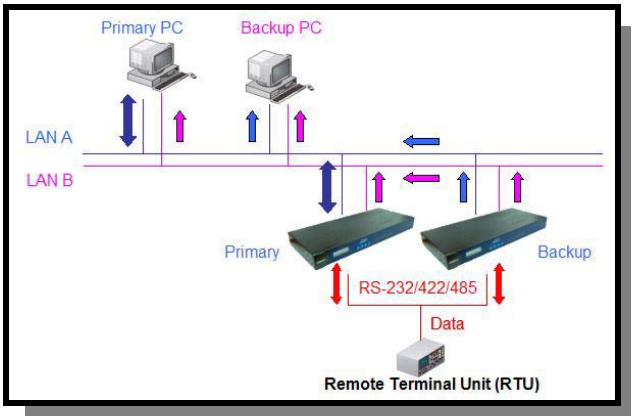
Dual-host Redundant Data Acquisition System (DRDAS mode)



DRDAS realizes a highly redundant structure. With CN2610's dual LAN ports, dual IP addresses and dual MAC address, the CN2610 can still receive serial data from the backup PC when the primary PC fails.

CN2610's dual-host redundant solution can send received serial data to 4 IP addresses on the network. Users have to select a Primary IP and 3 Secondary IPs from these 4 IP addresses. When the Primary IP fails, the backup IPs will take over by using the switching library (refer to chapter 7 for more details).

When communicating 4 IP addresses, if one of the secondary IPs tries to send commands to the serial device, the commands will be discarded once they reach the CN2610, since the Primary IP is the only IP address that can conduct by-directional transmission. The backup IPs can only receive data from the CN2610, but cannot send commands to the serial device.



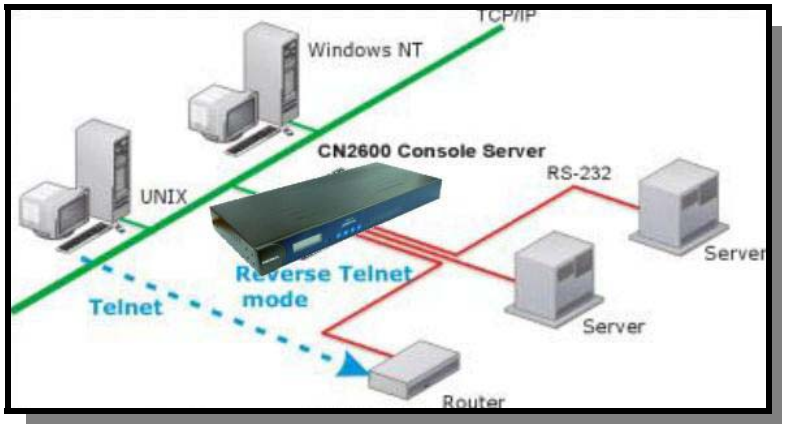
In order to implement the highly redundant system setup, it'd better to use 2 CN2610s in the structure as shown above. In this way, from PC hosts, the networks, to the CN2610 Async Servers, all have redundant setup. For this reason, this entire system can still operate when the following situations occur:

1. When the Primary PC and LAN A fail at the same time: the backup PC and LAN B can take over, and make the system keep running.
2. When the Primary PC and the Primary CN2610 fail at the same time: the backup PC and the backup CN2610 can take over, and make the system keep running.
3. When LAN A and the Primary CN2610 fail at the same time: LAN B and the backup CN2610 can take over, and make the system keep running.

NOTE The RS-232 connector of the Remote Terminal Unit (RTU) shown above has to work with a RS-232 to RS-422/485 converter (for instance, MOXA TCC-100I) to convert the RS-232 connector to a RS-485 one. And the CN2610s' connectors also have to use converters, like MOXA TCC-100I. In this way, users can take advantage of the Multi-drop feature of the RS-485 connectors to share data to the secondary CN2610.

Refer to chapter 7 for detailed information and configuration instructions.

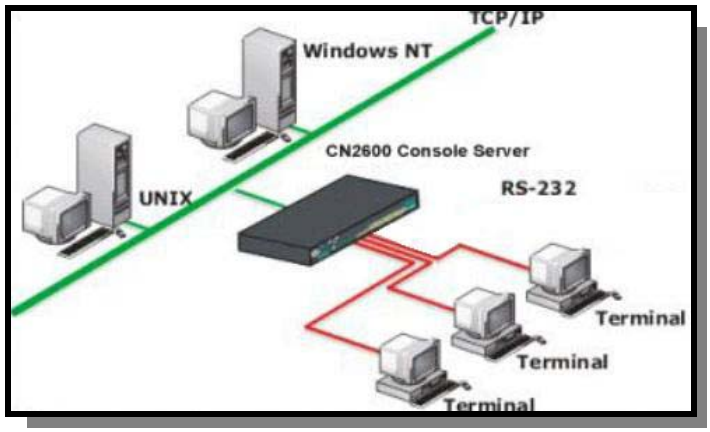
Console Management (Rtelnet mode)



Console management is commonly used upon Console/AUX or COM port of routers, switches, and UPS. Rtelnet works the same as RAW mode that they only listen to one specific TCP port after booting up, and wait for the host on the network to initiate the connection. The difference is that the RAW mode does not provide conversion function of telnet protocol. If the connected devices need to use CR/LF conversion function when controlling, then users have to choose Rtelnet mode. In addition, since CN2610's Rtelnet mode is widely used in device management in Telecommunication control rooms, therefore, managers for remote hosts can also use Local User Table or RADIUS identity verification methods.

Refer to chapter 8 for detailed information and configuration instructions.

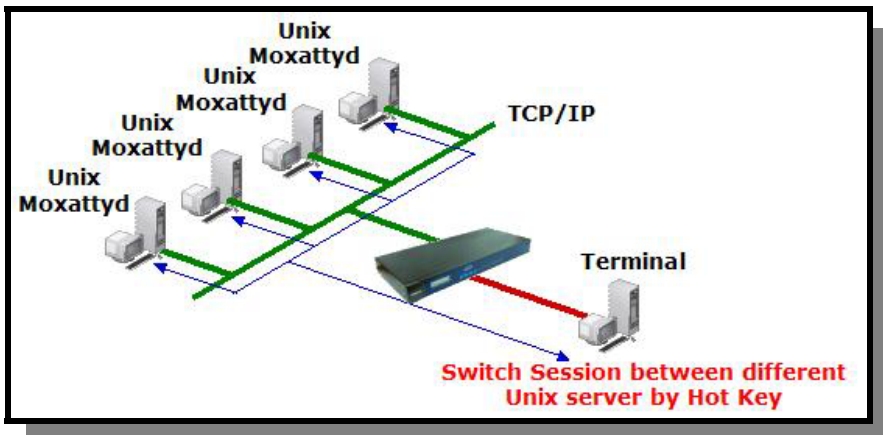
Terminal Access (ASCII, BIN mode)



CN2610 Async Server and connect terminals to Unix or Windows Servers on the network via RS-232 connectors. Many fast keys used in many terminal applications and switching session in the same terminal can be done via Terminal Access (ASCII, BIN mode).

CN2610 supports ASCII terminal and Binary terminal with up to 8 simultaneous sessions for each port. Refer to chapter 9 for detailed information and configuration instructions.

Multi-host TTY (Fix TTY mode)



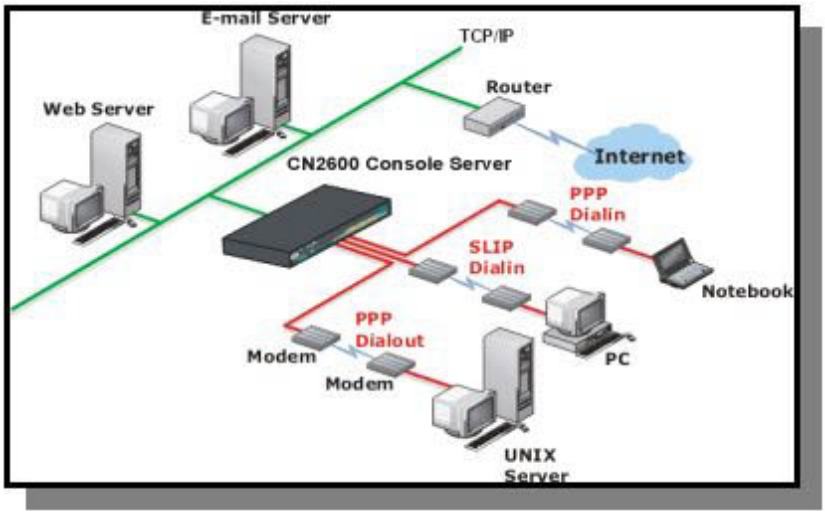
When terminals need to communicate with multiple Unix hosts on the network via several simultaneous sessions, Multi-host TTY is the ideal method for transmission.

When the communication starts, the Unix server on the network have to enable Moxattyd first to activate TTY port's mapping function. Once it's done, Moxattyd will initiate the connection with the CN2610, and the CN2610 will listen to the connection requests by various Moxattyd at different TCP ports.

Once the connection is established, the Terminal server shown at the bottom right corner can switch session by using hot keys, in order to use one terminal to control different Unix hosts.

Refer to chapter 10 for detailed information and configuration instructions.

Dial-in/out of Band Management (PPP/SLIP mode)



Moxa CN2610 Async Server provides dial-up/out access for both ISPs and enterprises needing remote access solutions. When a user at a remote site wishes to connect to the network where the CN2610 is located via PPP dial-up connection, CN2610 not only acts as a dial-up server, but also verifies the identity of the user via Local User Table or RADIUS, making sure that the user has legal access to this network.

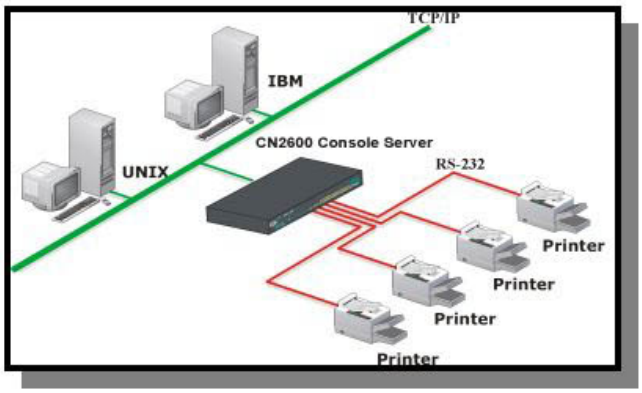
CN2610 supports PPP, SLIP, and Terminal modes for dial-up/out access. No matter which operating system you are using, you can always use standard PPP dial-up procedures to establish the connection.

Apart from the built-in RADIUS Server for supporting Windows NT/2000, Moxa offers free RADIUS Server software exclusively for Linux users.

For those who need to use serial ports for WAN connection, CN2610 can act as an Async Router. Users can adjust different WAN connectors' routing via routing protocols (including static, RIP I,

and RIP II). Refer to chapter 11 for detailed information and configuration instructions.

Network Printer (RAW/LPD mode)



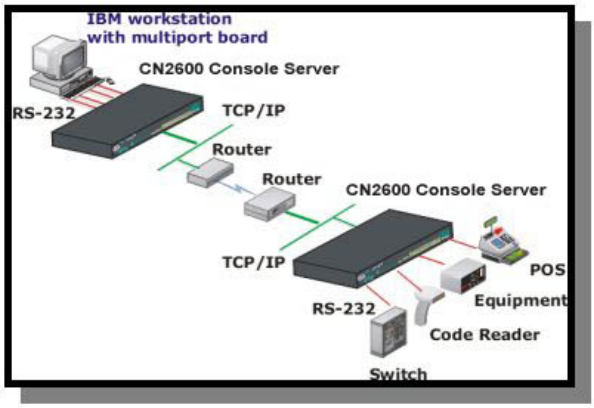
CN2610 Async Server's printing program (running under UNIX) provides an excellent solution for banking or stock exchange services with huge printing demands.

Users can use Windows or Unix host's network printer function via RAW mode. All you have to do is assign a specific IP address and a TCP port number to specify the printer's location.

In addition, when LPD protocol is needed for operating the printer, you can also connect to the printer via LPD mode.

Refer to chapter 12 for detailed information and configuration instructions.

Multiplexor Access (Term_BIN/Rtelnet mode)



Let's suppose that you have installed a multiport serial board inside a traditional UNIX host, but wish to extend the device control range without dismantling the host. You can do this with CN2610. It provides satisfying Multiplex and De-multiplex solutions using its Rtelnet and terminal modes. No need to modify any software.

In this application, CN2610 acts like a converter successfully extend the communication distance by using CN2610 in pairs and the network, solving the problem of short communication distance of the serial connection. During the communication process, CN2610 will transmit every piece of serial data to another CN2610 at a remote site. But if you need to copy the status of control signals to the device at a remote site, this mode does not support.

Refer to chapter 13 for detailed information and configuration instructions.

4

Setting up Window Real COM/Linux Real TTY/Unix Fixed TTY

CN2610 Async Server supports Real COM/TTY driver for Windows and Linux, allowing serial ports to be recognized as Real COM ports by the Windows operating system, or Real TTY ports by Linux environments. Through CN2610 Async Server, many applications can be enhanced to an Ethernet environment instantly without modifying the software. The original software can still be used to control COM3, COM4 and COM5. By using the Real COM driver provided by Moxa, users can control and operate these serial ports as Windows' local Real COM ports.

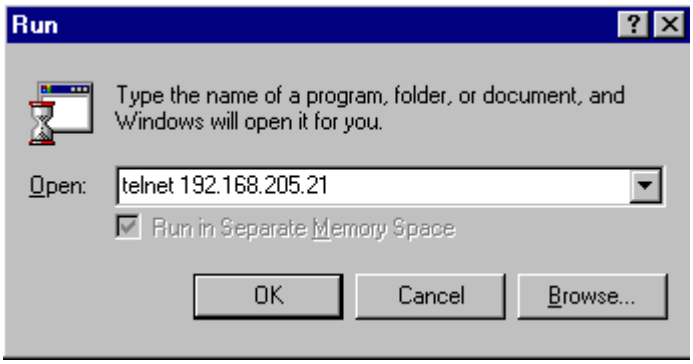
The following topics are covered in this chapter:

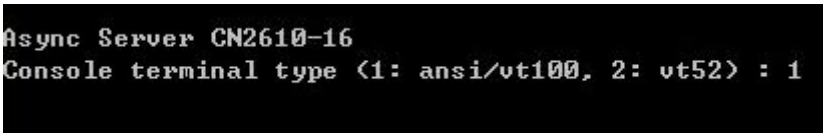
- **Configuring Port Operation Mode – Port Menu [Mode]**
  - NT Real COM Mode
- **Configuring Port Connection Setting – Port Menu [Line]**
- **Setting up Hosts**
  - Setting up Windows XP/2003 Hosts
  - Setting up Windows 2000 Hosts/Compiling Real TTY
  - Setting up Windows 95/98/ME/NT

Configuring Port Operation Mode – Port Menu [Mode]

Open Port Menu→Mode to install NT Real COM mode.

1. To enter CN2610 **MAIN MENU**, use either Telnet from a network terminal, or connect directly to CN2610 Async Server with a console terminal. Select **ansi/vt100**, and then press **Enter**. Refer to chapter 2 for more details about how to enter **MAIN MENU**.

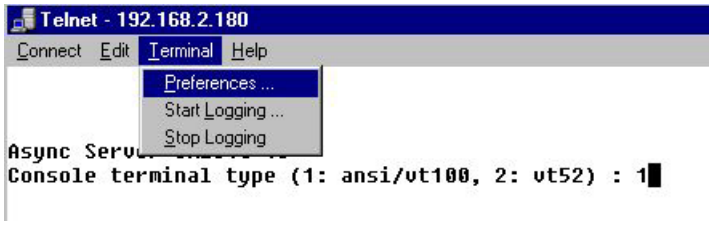


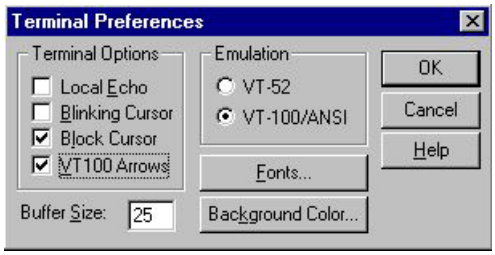


2. The table below is the **MAIN MENU** of CN2610 Async Server. Before you begin, familiarize yourself with the cursor movement functions before starting the configuration process.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

If you have problems using the arrow keys to move the cursor in Windows 9x or NT environment, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.

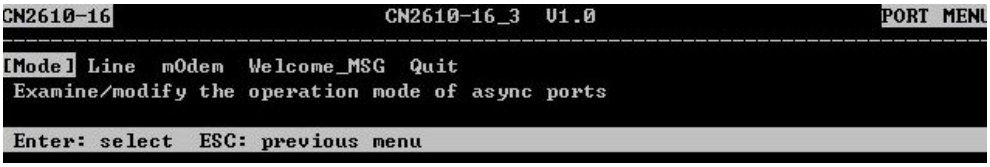




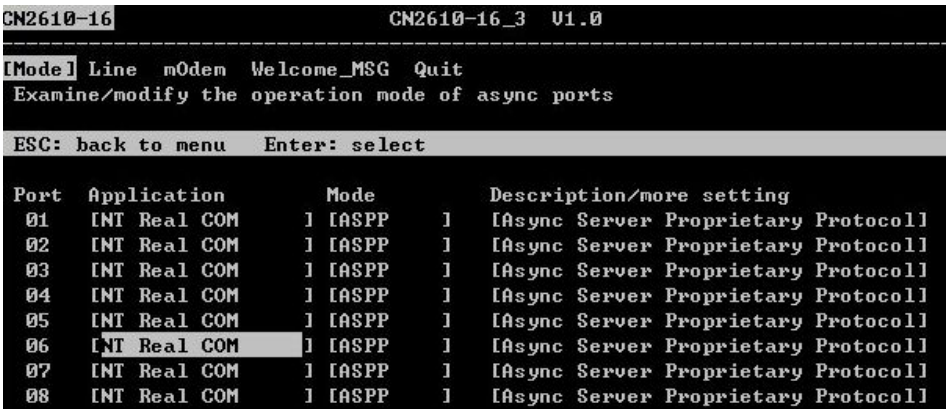
3. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

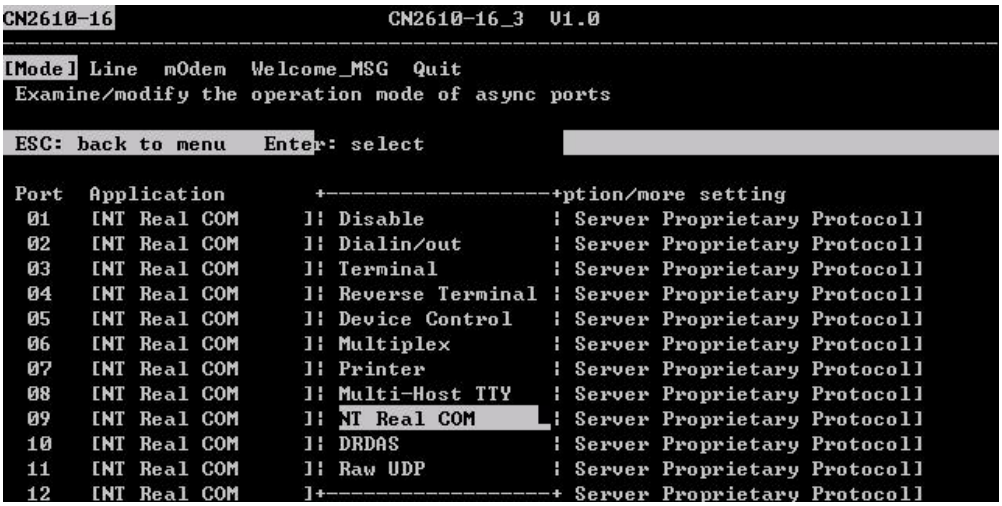
4. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
Enter: select ESC: previous menu

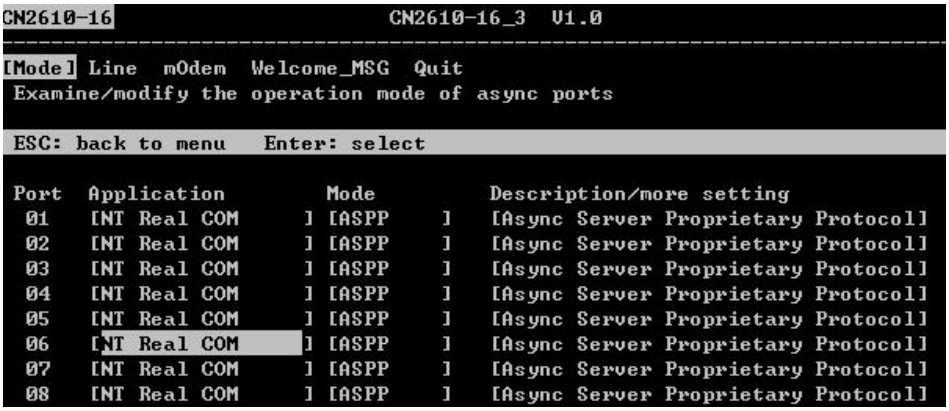
5. In **Mode**, use the arrow keys to move the cursor to the application corresponding to serial ports. Here we use Port 6 as an example.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
02 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
03 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
04 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
08 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

6. Press **Enter** to open the application window. Use **Up/Down** Arrow keys to select **NT Real COM mode**. Press **Enter** to confirm.

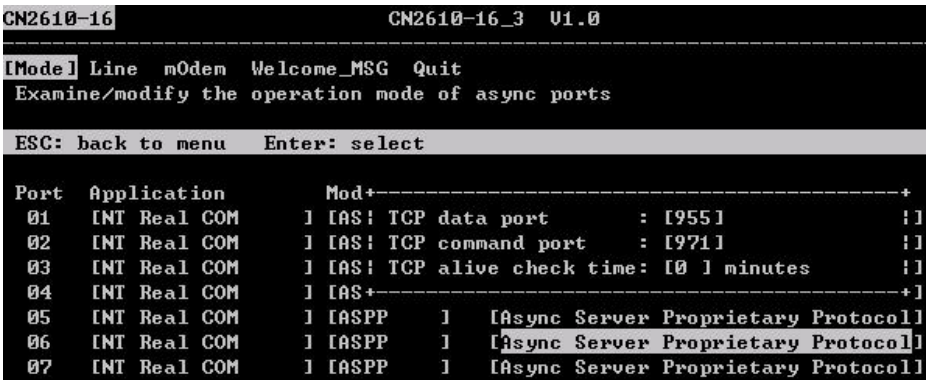

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application +------------------+ption/more setting
01 [NT Real COM]| Disable | Server Proprietary Protocol]
02 [NT Real COM]| Dialin/out | Server Proprietary Protocol]
03 [NT Real COM]| Terminal | Server Proprietary Protocol]
04 [NT Real COM]| Reverse Terminal | Server Proprietary Protocol]
05 [NT Real COM]| Device Control | Server Proprietary Protocol]
06 [NT Real COM]| Multiplex | Server Proprietary Protocol]
07 [NT Real COM]| Printer | Server Proprietary Protocol]
08 [NT Real COM]| Multi-Host TTY | Server Proprietary Protocol]
09 [NT Real COM]| NT Real COM | Server Proprietary Protocol]
10 [NT Real COM]| DRDAS | Server Proprietary Protocol]
11 [NT Real COM]| Raw UDP | Server Proprietary Protocol]
12 [NT Real COM]+------------------+ Server Proprietary Protocol]

7. Repeat Step 6 to configure port settings. For example, you can follow the steps described below to configure Port 1 to Port 8 for **NT Real COM mode** application.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
02 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
03 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
04 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
08 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

NT Real COM Mode

1. Move the cursor to **Description/more setting**, press **Enter**, and a message window will open next.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mod
01 [NT Real COM] [AS TCP data port : [955]
02 [NT Real COM] [AS TCP command port : [971]
03 [NT Real COM] [AS TCP alive check time: [0] minutes
04 [NT Real COM] [AS
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

Setting	Value	Notes	Necessity
TCP data port	950-965	The host will use this Port value to determine to send the data to which device. For example, 950 is the first serial device. 951 is the second serial device.	Yes
TCP command port	966-981	The host will use this Port value to determine to send the command to which device. For example, 966 is the first serial device. 967 is the second serial device.	Yes
TCP alive check time	0-99 minute	This is the time period for checking whether TCP connection is alive or not. If receiving no response, CN2610 will re-configure the port and shut off the initial connection.	Optional

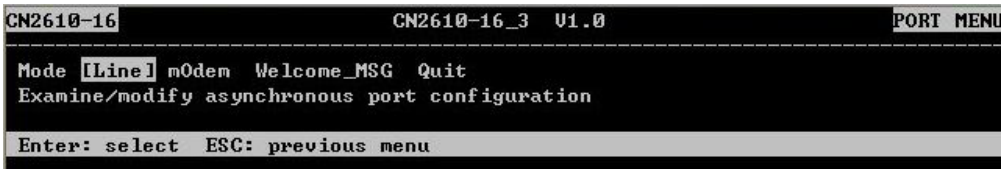
2. Repeat the step above to configure all **NT Real COM** ports.
3. Pres **ESC** to return to the **Port Menu**.

Configuring Port Connection Setting – Port Menu [Line]

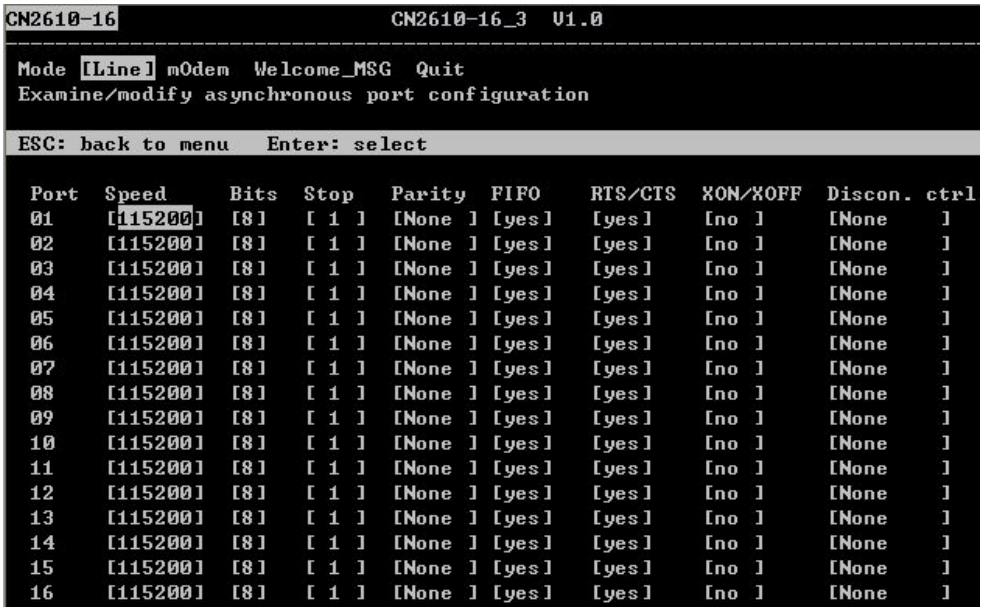
1. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

2. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
Enter: select ESC: previous menu

3. Select the ports and configure the settings.


CN2610-16 CN2610-16_3 V1.0
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
ESC: back to menu Enter: select
Port Speed Bits Stop Parity FIFO RTS/CTS XON/XOFF Discon. ctrl
01 [115200] [8] [1] [None] [yes] [yes] [no] [None]
02 [115200] [8] [1] [None] [yes] [yes] [no] [None]
03 [115200] [8] [1] [None] [yes] [yes] [no] [None]
04 [115200] [8] [1] [None] [yes] [yes] [no] [None]
05 [115200] [8] [1] [None] [yes] [yes] [no] [None]
06 [115200] [8] [1] [None] [yes] [yes] [no] [None]
07 [115200] [8] [1] [None] [yes] [yes] [no] [None]
08 [115200] [8] [1] [None] [yes] [yes] [no] [None]
09 [115200] [8] [1] [None] [yes] [yes] [no] [None]
10 [115200] [8] [1] [None] [yes] [yes] [no] [None]
11 [115200] [8] [1] [None] [yes] [yes] [no] [None]
12 [115200] [8] [1] [None] [yes] [yes] [no] [None]
13 [115200] [8] [1] [None] [yes] [yes] [no] [None]
14 [115200] [8] [1] [None] [yes] [yes] [no] [None]
15 [115200] [8] [1] [None] [yes] [yes] [no] [None]
16 [115200] [8] [1] [None] [yes] [yes] [no] [None]

Setting	Value	Notes
Speed	50 bps to 230.4 Kbps	Transmission rate
Bits	5/6/7/8	Data bits
Stop	1/1.5/2	Stop bits
Parity	None, Even, Odd, Mark, Space	Odd, Even, Mark, Space
FIFO	Yes/No	First In First Out Device
RTS/CTS	Yes/No	Hardware Flow Control
XON/XOFF	Yes/No	Software Flow Control
Discon. Ctrl	None/DSR off/DCD off	No activity in this mode

4. Repeat the step above to configure all functions.
5. Press **ESC** to return the **Port Menu**.

Setting up Hosts

Setting up Windows XP/2003 Hosts

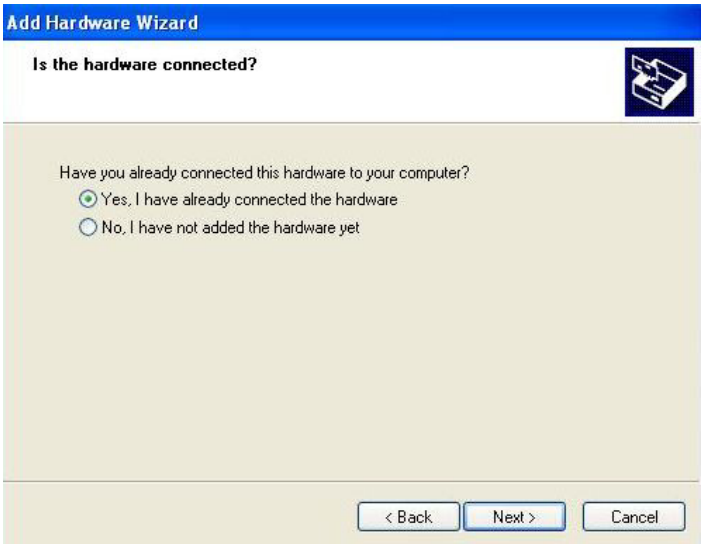
After using CN2610 Console Utility to set up a Windows XP/2003 host, you'll need to install port driver on every Windows XP/2003 host needing access to CN2610 ports. Here we use Windows XP as an example for illustrating installation. Windows 2003 installation is the same as Windows XP. Refer to the following instruction.

Installing a Server

1. Unzip Windows XP/2003 driver file located in CN2610 CD ROM to your hard disk.
2. Click on **Control Panel-->Add Hardware**. The **Add Hardware Wizard** will start. Click on **Next** to continue.

Add Hardware Wizard
Welcome to the Add Hardware Wizard
This wizard helps you:
• Install software to support the hardware you add to your computer.
• Troubleshoot problems you may be having with your hardware.
If your hardware came with an installation CD, it is recommended that you click Cancel to close this wizard and use the manufacturer's CD to install this hardware.
To continue, click Next.
< Back
Next >
Cancel

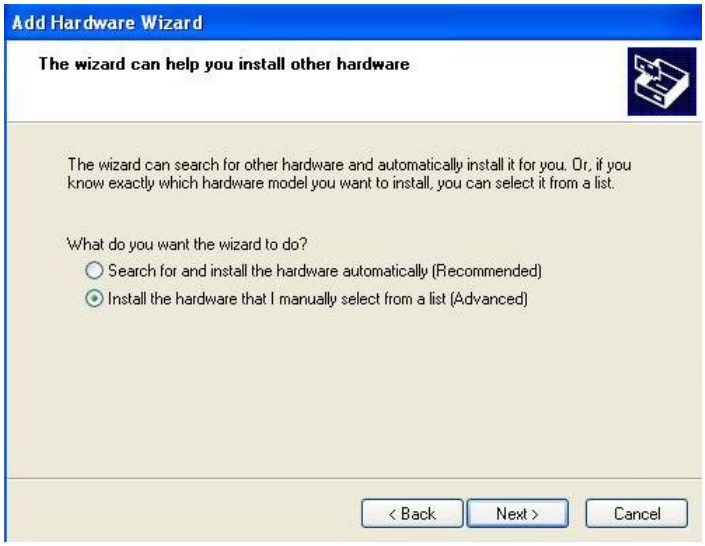
3. The next window to open will ask you if the hardware is connected. Select **Yes, I have already connected the hardware**, and click on **Next** to continue.


Add Hardware Wizard
Is the hardware connected?
Have you already connected this hardware to your computer?
Yes, I have already connected the hardware
No, I have not added the hardware yet
< Back
Next >
Cancel

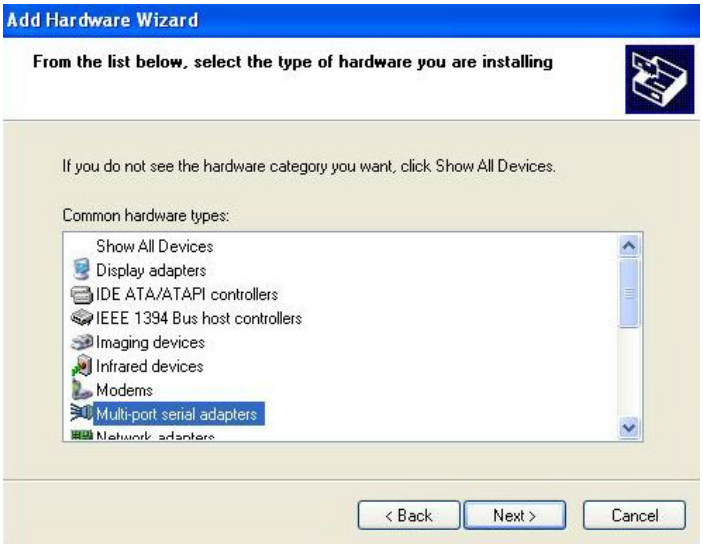
4. Select **Add a new hardware device** in the next window that opens. And then click on **Next** to continue.

Add Hardware Wizard
The following hardware is already installed on your computer
From the list below, select an installed hardware device, then click Next to check properties or troubleshoot a problem you might be having.
To add hardware not shown in the list, click "Add a new hardware device."
Installed hardware:
Communications Port (COM1)
Communications Port (COM2)
Intel(r) Pentium(r)III processor
Intel(r) 82371AB/EB PCI to USB Universal Host Controller
USB Root Hub
Add a new hardware device
< Back
Next >
Cancel

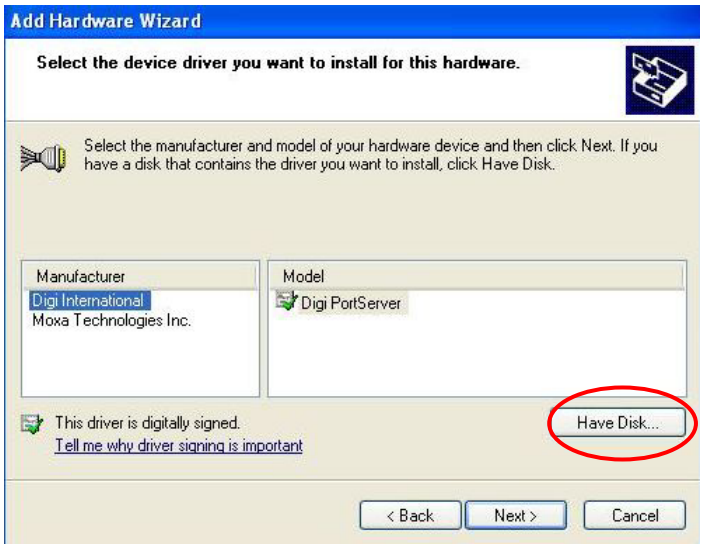
5. In the window that opens next, select **Install the hardware that I manually select from a list (Advanced)** to install the hardware. And then click on **Next** to continue.

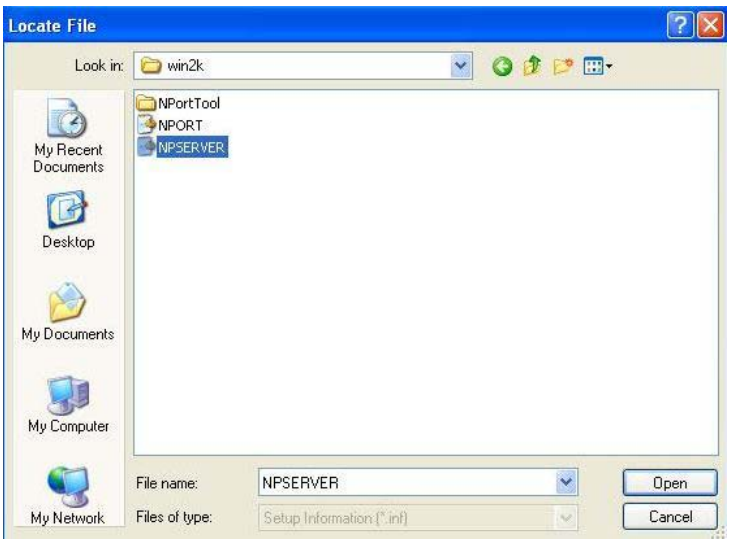

Add Hardware Wizard
The wizard can help you install other hardware
The wizard can search for other hardware and automatically install it for you. Or, if you know exactly which hardware model you want to install, you can select it from a list.
What do you want the wizard to do?
Search for and install the hardware automatically (Recommended)
Install the hardware that I manually select from a list (Advanced)
< Back
Next >
Cancel

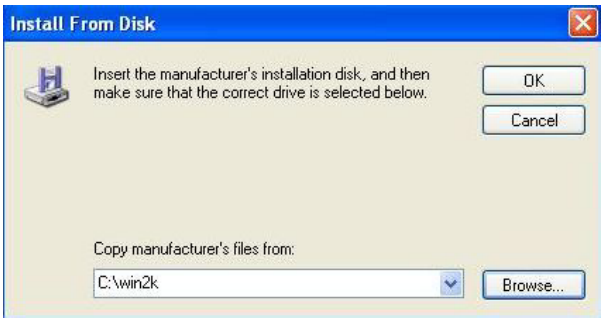
6. The window that opens next will ask you select the type of hardware you are installing. Select **Multi-port serial adapters**, and click on **Next** to continue.


Add Hardware Wizard
From the list below, select the type of hardware you are installing
If you do not see the hardware category you want, click Show All Devices.
Common hardware types:
Show All Devices
Display adapters
IDE ATA/ATAPI controllers
IEEE 1394 Bus host controllers
Imaging devices
Infrared devices
Modems
Multi-port serial adapters
< Back
Next >
Cancel

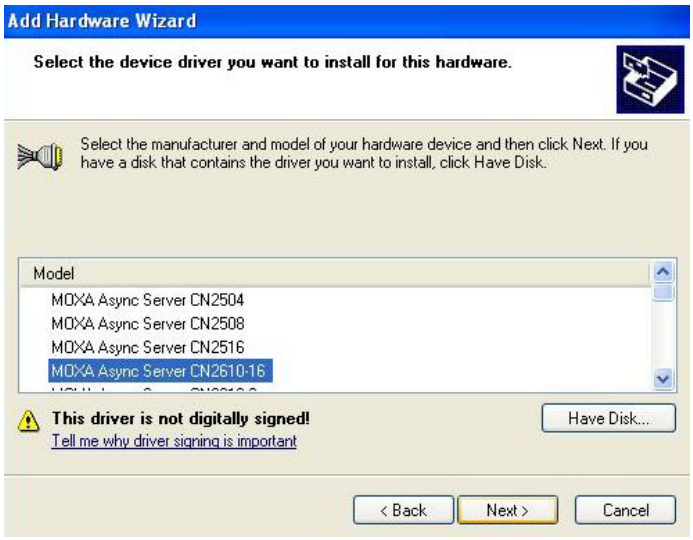
7. The window that opens next will ask you to select the device driver you want to install for this hardware. Select **Have Disk** to install from a disk, select the driver file **NPSERVER.INF**, and locate the driver file.


Add Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Manufacturer
Digi International
Moxa Technologies Inc.
Model
Digi PortServer
This driver is digitally signed.
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

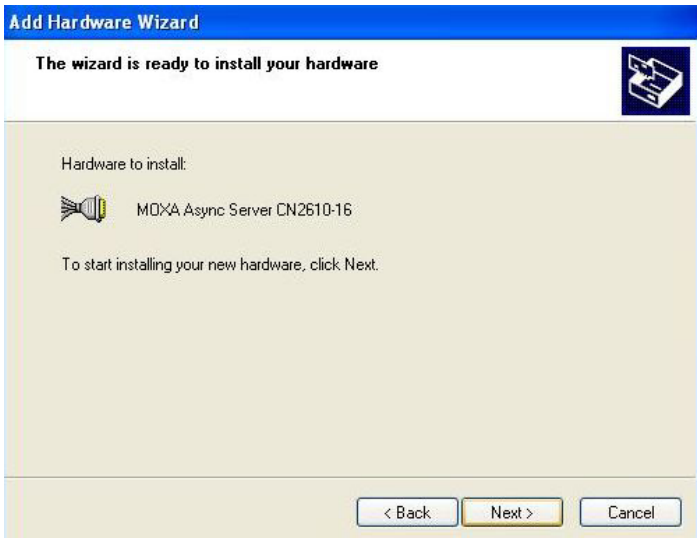


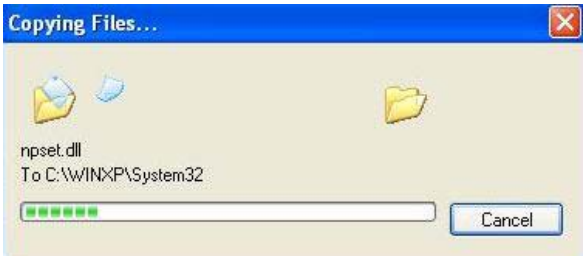


8. In the next window to open, select your CN2610 model, and click on Next to continue.

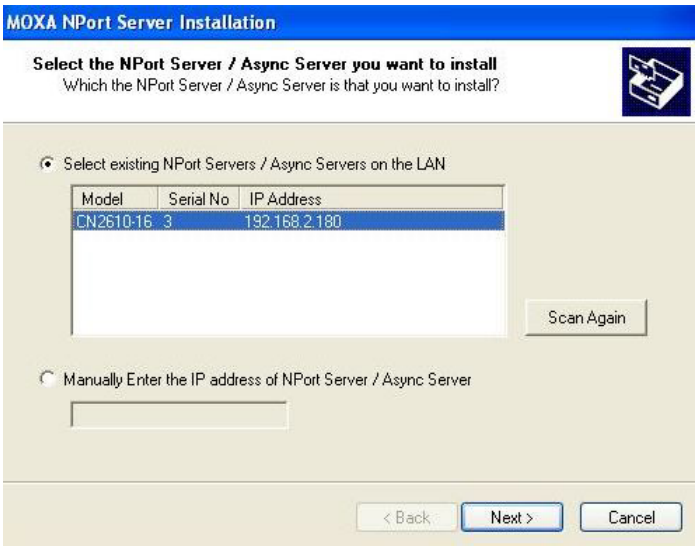

Add Hardware Wizard
Select the device driver you want to install for this hardware.
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Model
MOXA Async Server CN2504
MOXA Async Server CN2508
MOXA Async Server CN2516
MOXA Async Server CN2610-16
This driver is not digitally signed!
Tell me why driver signing is important
Have Disk...
< Back
Next >
Cancel

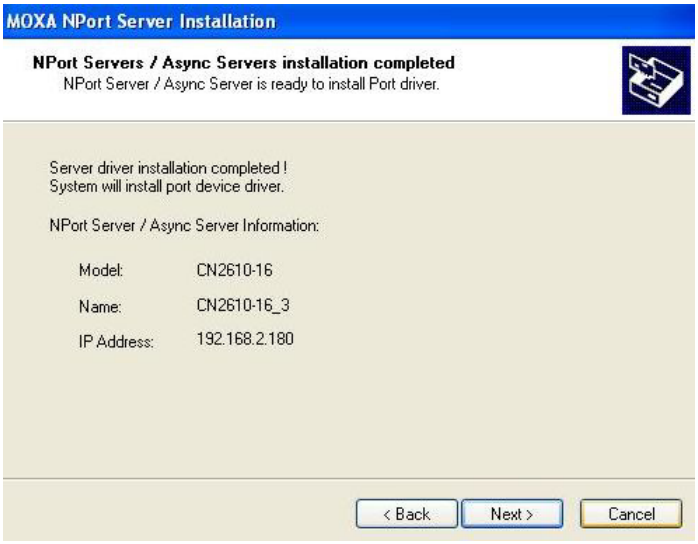
9. The Wizard will start installing the Server driver, and automatically search for CN2610 products over the network.


Add Hardware Wizard
The wizard is ready to install your hardware
Hardware to install:
MOXA Async Server CN2610-16
To start installing your new hardware, click Next.
< Back
Next >
Cancel



10. You can either select the CN2610 that has been located, or select **Manually Enter the IP address of NPort Server / Async Server** to search for CN2610. Click on **Next** to finish installing CN2610.


MOXA NPort Server Installation
Select the NPort Server / Async Server you want to install
Which the NPort Server / Async Server is that you want to install?
Select existing NPort Servers / Async Servers on the LAN
Model
Serial No
IP Address
CN2610-16
3
192.168.2.180
Scan Again
Manually Enter the IP address of NPort Server / Async Server
< Back
Next >
Cancel



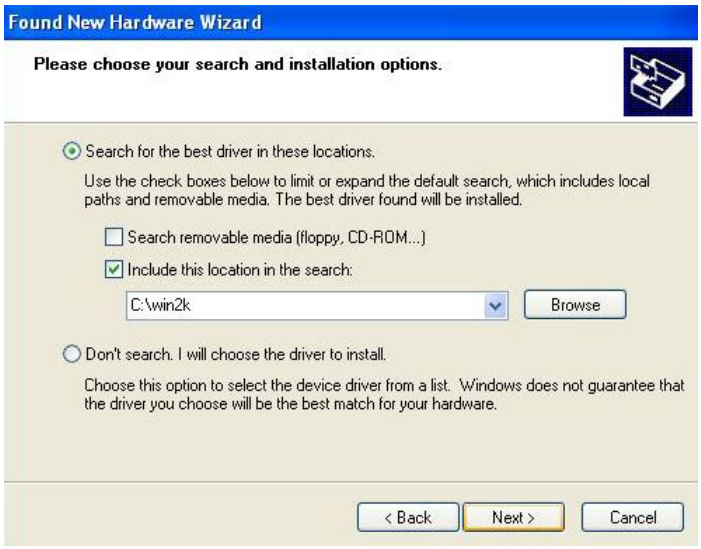
Add Hardware Wizard
Completing the Add Hardware Wizard
The following hardware was installed:
MOXA Async Server CN2610-16
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

Installing Ports

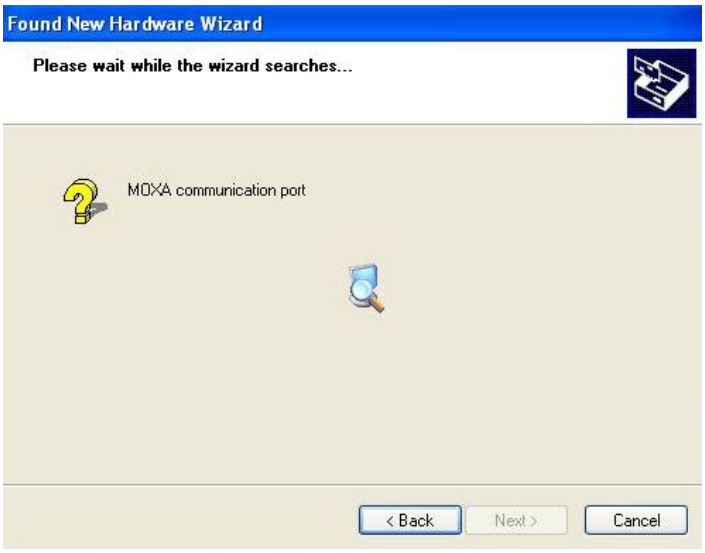
1. After CN2610 server installation is finished, Windows will automatically pop out another window stating that a new hardware is found. Select **Install from a list or specific location (Advanced)**, and click on **Next** to continue.

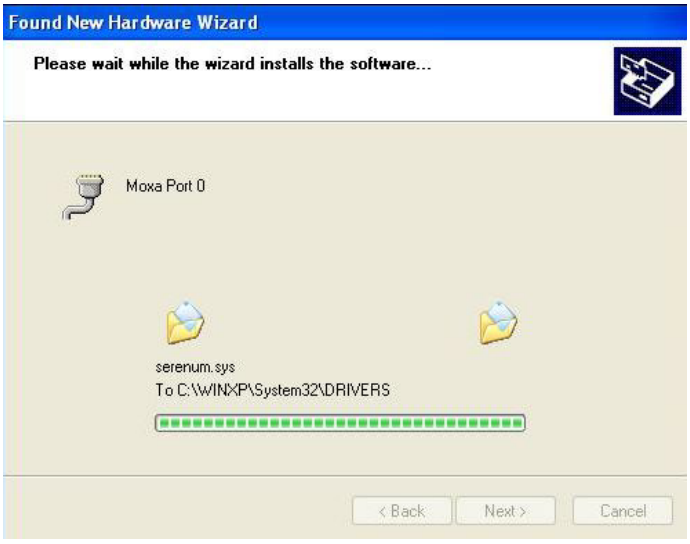
Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
MOXA communication port
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

2. The window that opens next will ask you to choose your search and installation options. Select **Include this location in the search**, and click on Next to continue.


Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM...)
Include this location in the search:
C:\win2k
Browse
Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< Back
Next >
Cancel

3. The system will install all necessary files automatically.





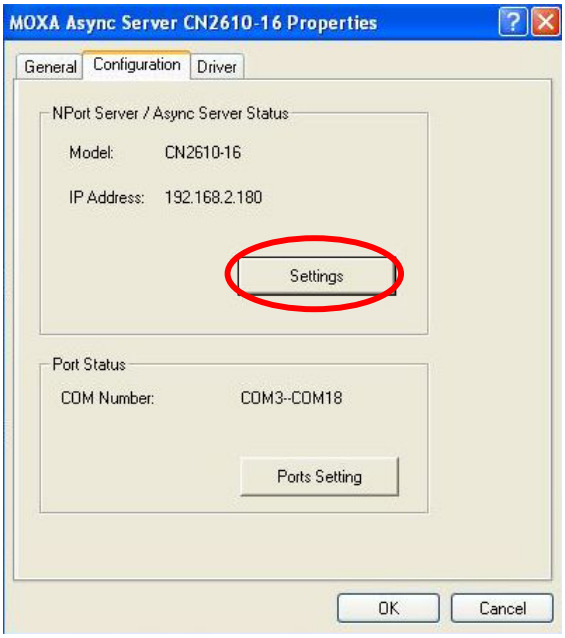
4. Moxa Port 0 installation is finished. The step 1 to step 4 will be repeated for several times, depending on how many serial ports on your CN2610 product. After the installation is complete, you can find the COM ports in **Device Manager**.

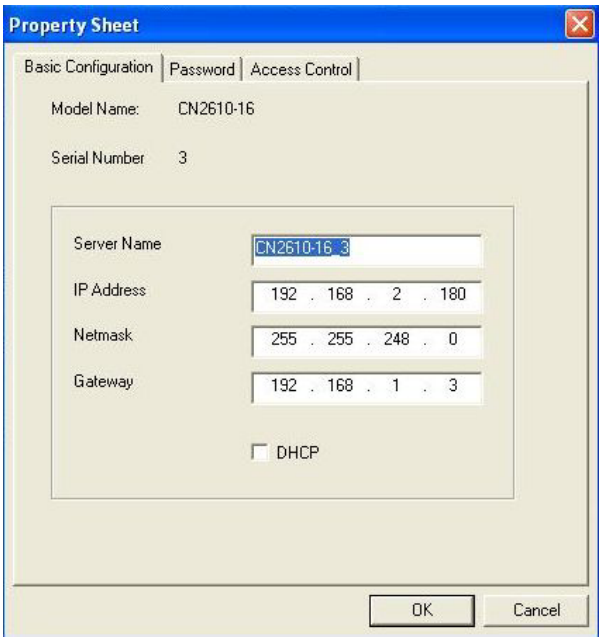
Configuring CN2610 in a Windows XP/2003 Environment

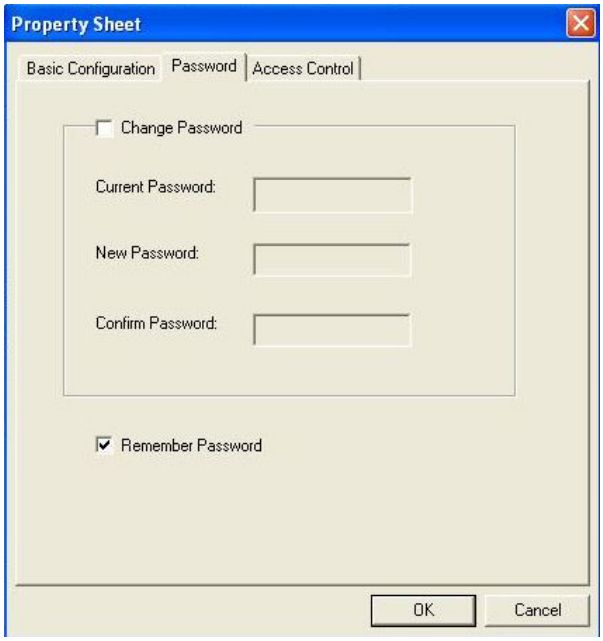
As soon as CN2610 driver is installed, the driver will guide you through CN2610's configuration. Or you can configure CN2610 later after the driver is installed. Here we will introduce Real COM Mapping configuration.

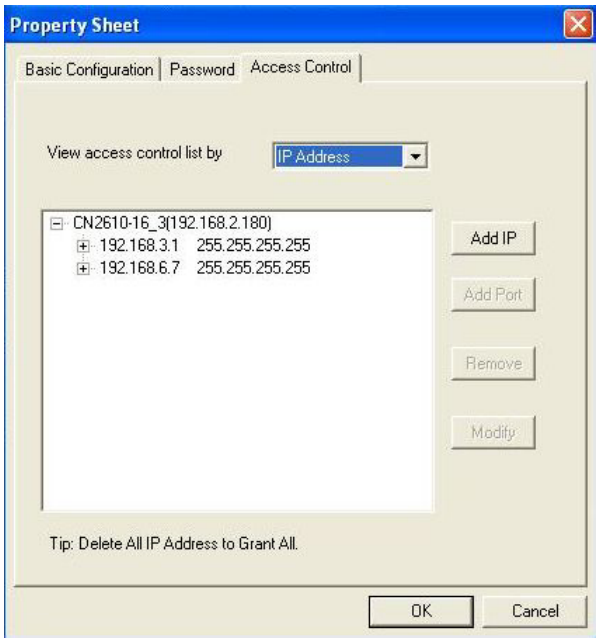
1. Click on **Device Manager-->Multiport serial adapters**. All of the installed CN2610s will be displayed. Select the CN2610 you wish to configure, and click on **Configuration** tab.

2. Click on NPort Server/Async Server Status's **Settings** to configure CN2610's Basic Configuration, Password, and Access Control.

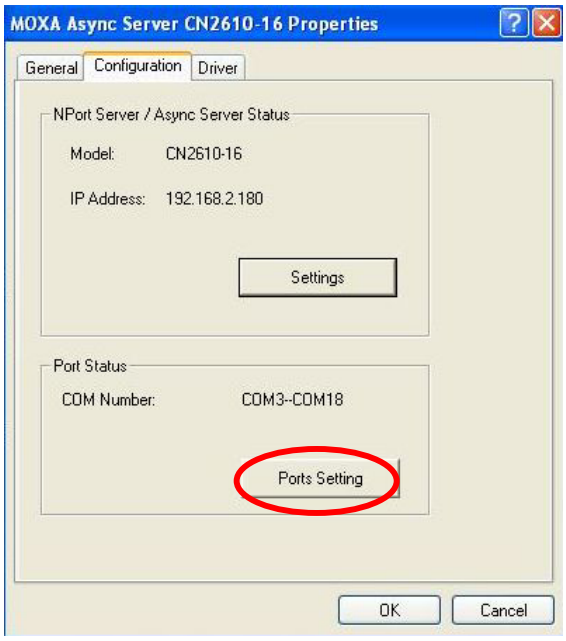


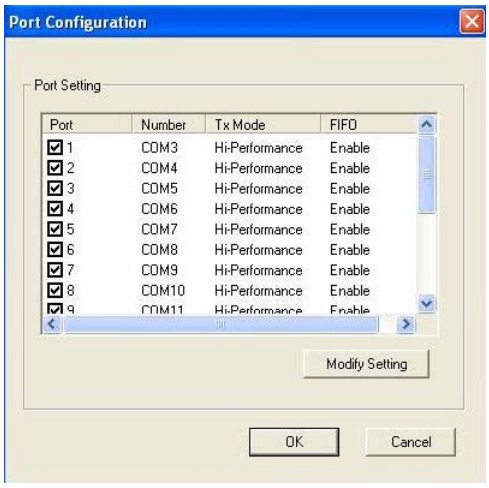


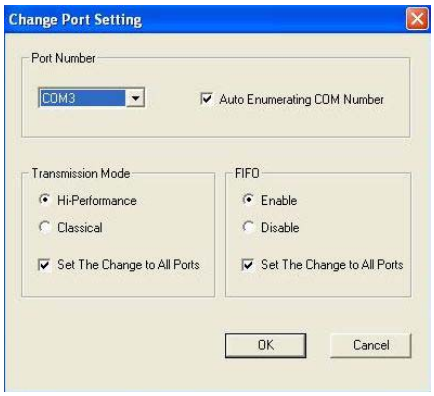

Property Sheet
Basic Configuration
Password
Access Control
Change Password
Current Password:
New Password:
Confirm Password:
Remember Password
OK
Cancel


Property Sheet
Basic Configuration
Password
Access Control
View access control list by
IP Address
CN2610-16_3(192.168.2.180)
192.168.3.1 255.255.255.255
192.168.6.7 255.255.255.255
Add IP
Add Port
Remove
Modify
Tip: Delete All IP Address to Grant All.
OK
Cancel

3. Click on **Port Setting** to configure COM port's data transmission mode and FIFO.





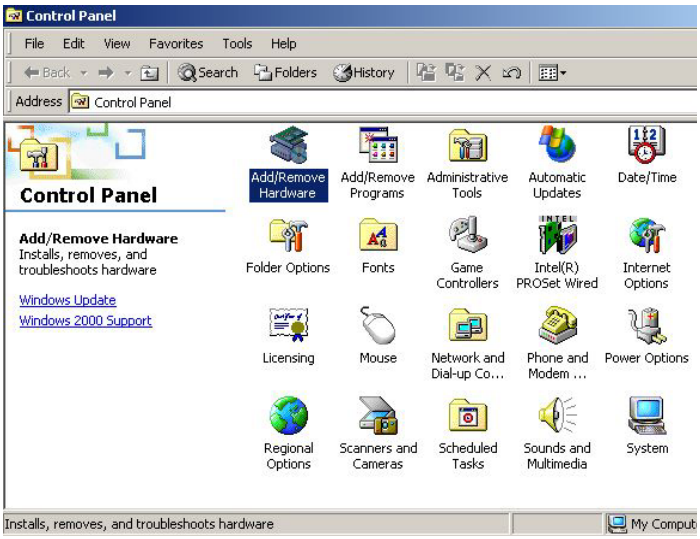


Setting up Windows 2000 Hosts

After setting up a CN2610 Async Server via Control Panel in a Windows 2000 environment, you'll need to install port driver on every Windows 2000 host needing access to CN2610 ports.

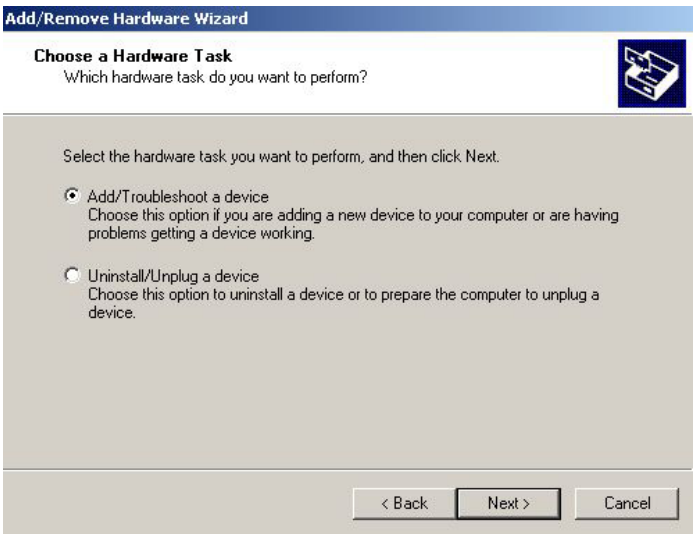
Installing a Server

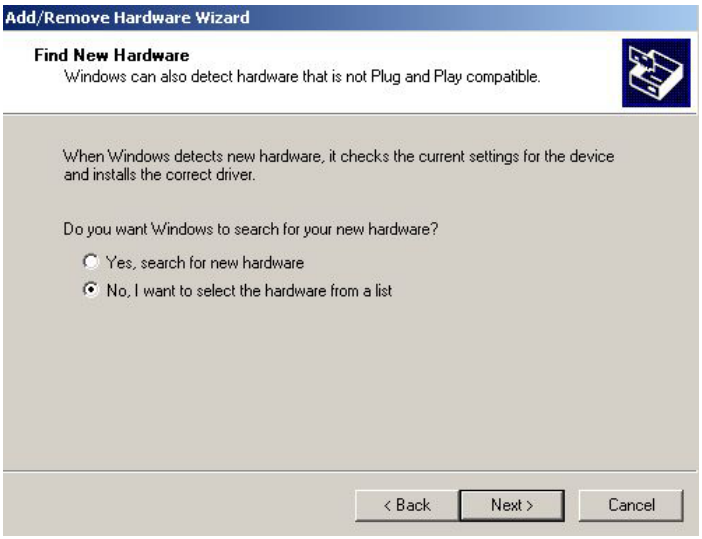
1. Unzip Windows 2000 driver file located in CN2610 CD ROM to your hard disk.
2. Click on **Control Panel-->Add/Remove Hardware**. The **Add/Remove Hardware Wizard** will start. Click on **Next** to continue.

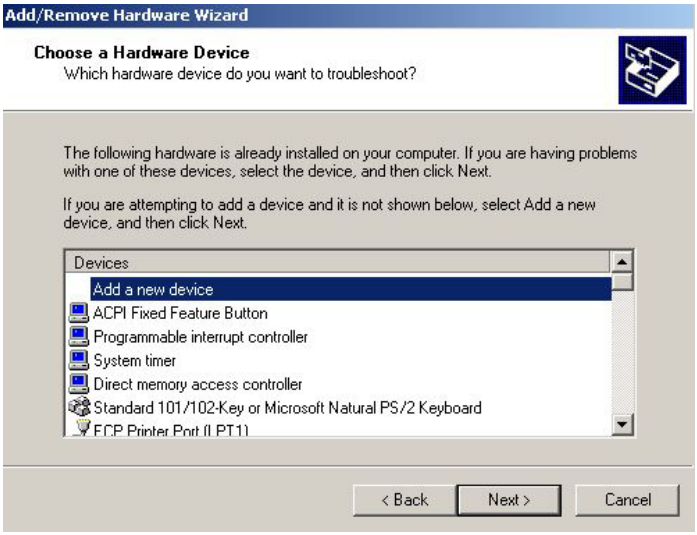


Add/Remove Hardware Wizard
Welcome to the Add/Remove Hardware Wizard
This wizard helps you add, remove, unplug, and troubleshoot your hardware.
To continue, click Next.
< Back
Next >
Cancel

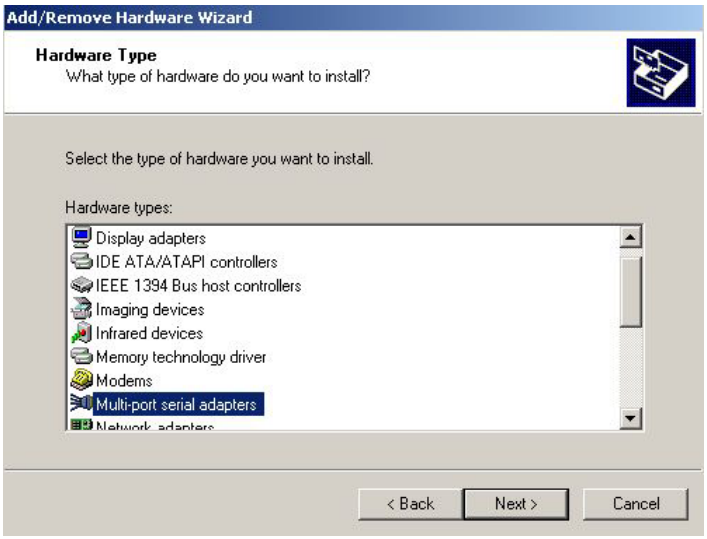
3. In the next window to open, select **Add/Troubleshoot a device**, and click on **Next** to continue. In the next window to open, select **No, I want to select the hardware from a list**.


Add/Remove Hardware Wizard
Choose a Hardware Task
Which hardware task do you want to perform?
Select the hardware task you want to perform, and then click Next.
Add/Troubleshoot a device
Choose this option if you are adding a new device to your computer or are having problems getting a device working.
Uninstall/Unplug a device
Choose this option to uninstall a device or to prepare the computer to unplug a device.
< Back
Next >
Cancel

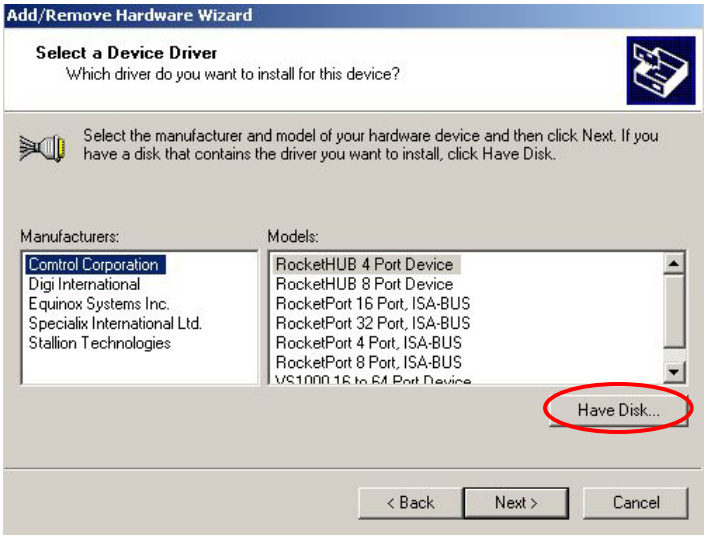

Add/Remove Hardware Wizard
Find New Hardware
Windows can also detect hardware that is not Plug and Play compatible.
When Windows detects new hardware, it checks the current settings for the device and installs the correct driver.
Do you want Windows to search for your new hardware?
Yes, search for new hardware
No, I want to select the hardware from a list
< Back
Next >
Cancel

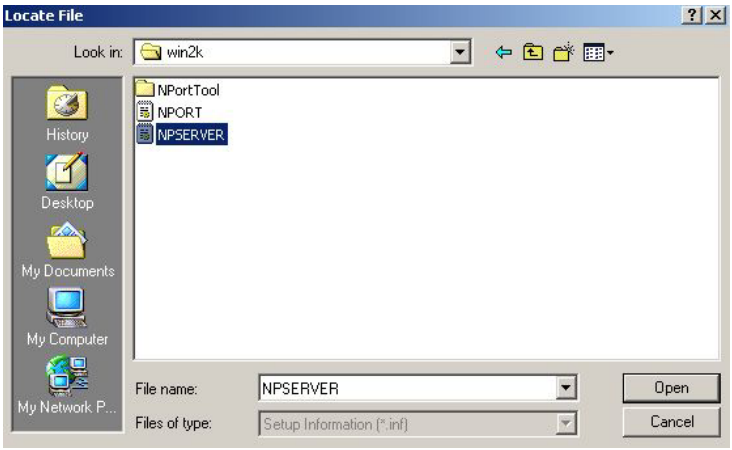

Add/Remove Hardware Wizard
Choose a Hardware Device
Which hardware device do you want to troubleshoot?
The following hardware is already installed on your computer. If you are having problems with one of these devices, select the device, and then click Next.
If you are attempting to add a device and it is not shown below, select Add a new device, and then click Next.
Devices
Add a new device
ACPI Fixed Feature Button
Programmable interrupt controller
System timer
Direct memory access controller
Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
< Back
Next >
Cancel

4. In the window that opens next, select **Multi-port serial adapters** from the **Hardware Type** list.

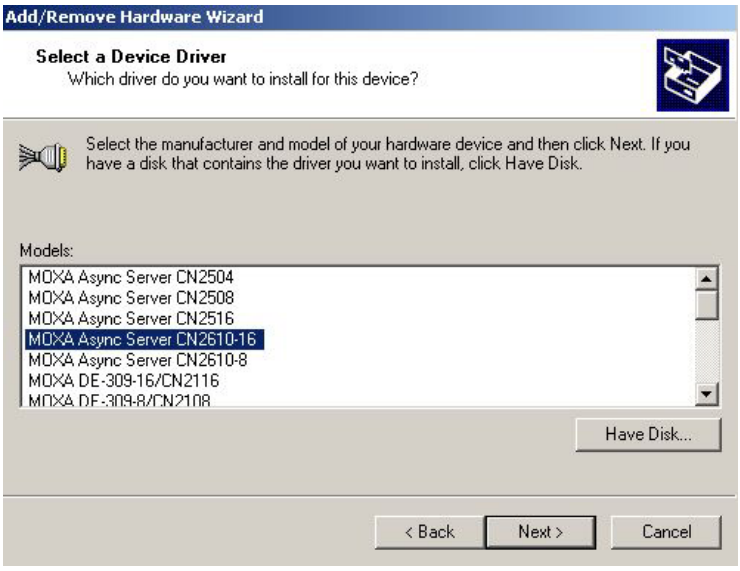


5. Select **Have Disk** to install from a disk, select the driver file **NPSERVER.INF**, and locate the driver file.

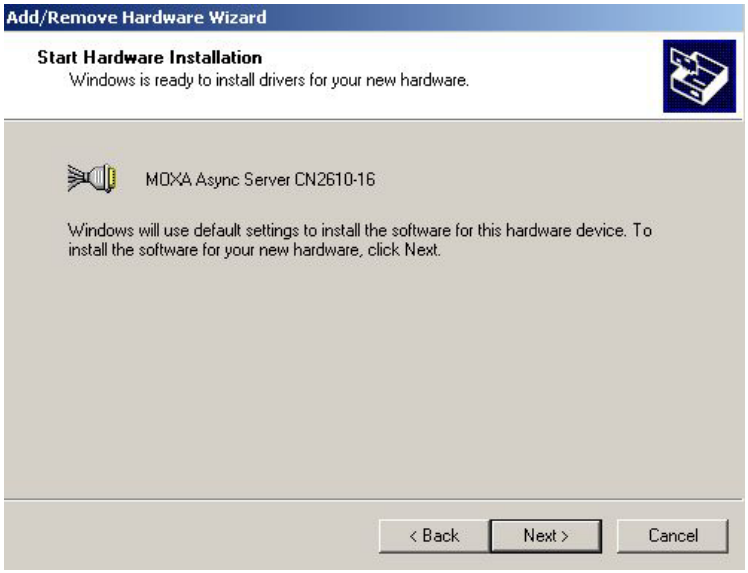

Add/Remove Hardware Wizard
Select a Device Driver
Which driver do you want to install for this device?
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Manufacturers:
Comtrol Corporation
Digi International
Equinox Systems Inc.
Specialix International Ltd.
Stallion Technologies
Models:
RocketHUB 4 Port Device
RocketHUB 8 Port Device
RocketPort 16 Port, ISA-BUS
RocketPort 32 Port, ISA-BUS
RocketPort 4 Port, ISA-BUS
RocketPort 8 Port, ISA-BUS
Have Disk...
< Back
Next >
Cancel



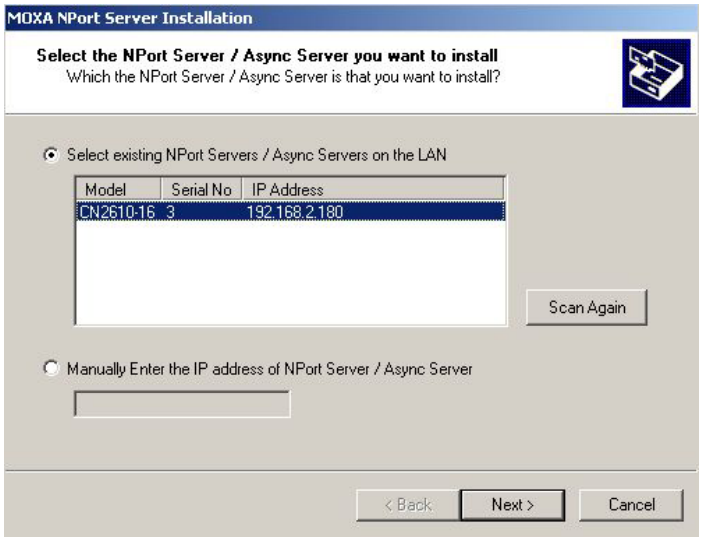
6. In the next window to open, select your CN2610 model, and click on Next to continue.

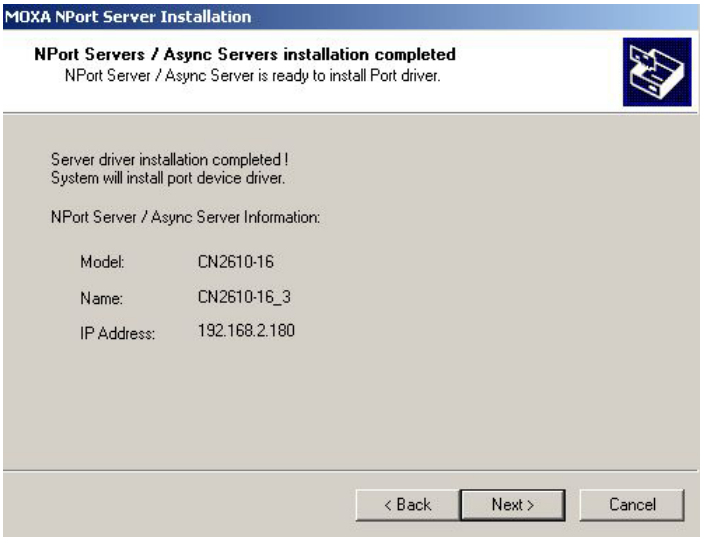

Add/Remove Hardware Wizard
Select a Device Driver
Which driver do you want to install for this device?
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Models:
MOXA Async Server CN2504
MOXA Async Server CN2508
MOXA Async Server CN2516
MOXA Async Server CN2610-16
MOXA Async Server CN2610-8
MOXA DE-309-16/CN2116
Have Disk...
< Back
Next >
Cancel

7. The Wizard will start installing the Server driver, and automatically search for CN2610 products over the network.


Add/Remove Hardware Wizard
Start Hardware Installation
Windows is ready to install drivers for your new hardware.
MOXA Async Server CN2610-16
Windows will use default settings to install the software for this hardware device. To install the software for your new hardware, click Next.
< Back
Next >
Cancel

8. You can either select the CN2610 that has been located, or select **Manually Enter the IP address of NPort Server / Async Server** to search for CN2610. Click on **Next** to finish installing CN2610.


MOXA NPort Server Installation
Select the NPort Server / Async Server you want to install
Which the NPort Server / Async Server is that you want to install?
Select existing NPort Servers / Async Servers on the LAN
Model
Serial No
IP Address
CN2610-16
3
192.168.2.180
Scan Again
Manually Enter the IP address of NPort Server / Async Server
< Back
Next >
Cancel


MOXA NPort Server Installation
NPort Servers / Async Servers installation completed
NPort Server / Async Server is ready to install Port driver.
Server driver installation completed !
System will install port device driver.
NPort Server / Async Server Information:
Model: CN2610-16
Name: CN2610-16_3
IP Address: 192.168.2.180
< Back
Next >
Cancel

Add/Remove Hardware Wizard
Completing the Add/Remove Hardware Wizard
The following hardware was installed:
MOXA Async Server CN2610-16
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

Installing Ports

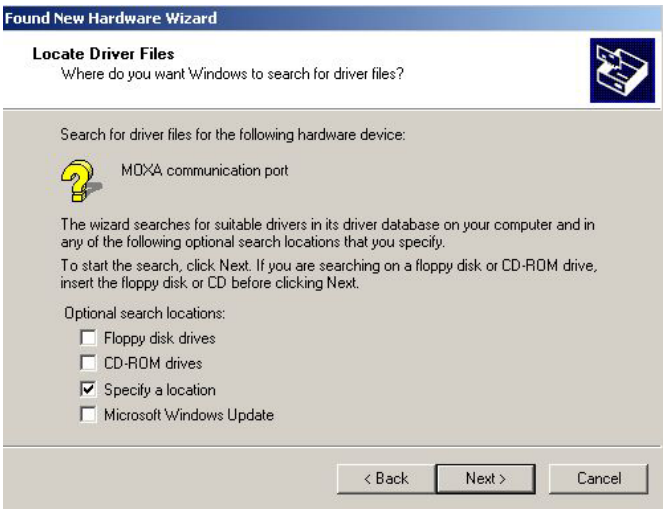
1. After CN2610 server installation is finished, Windows will automatically pop out another window stating that a new hardware is found. Click on **Next** to continue.

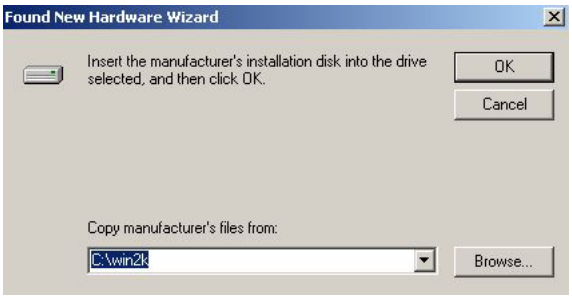
Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install a device driver for a hardware device.
To continue, click Next.
< Back
Next >
Cancel

2. The window that opens next, select **Search for a suitable driver for my device (recommended)**.

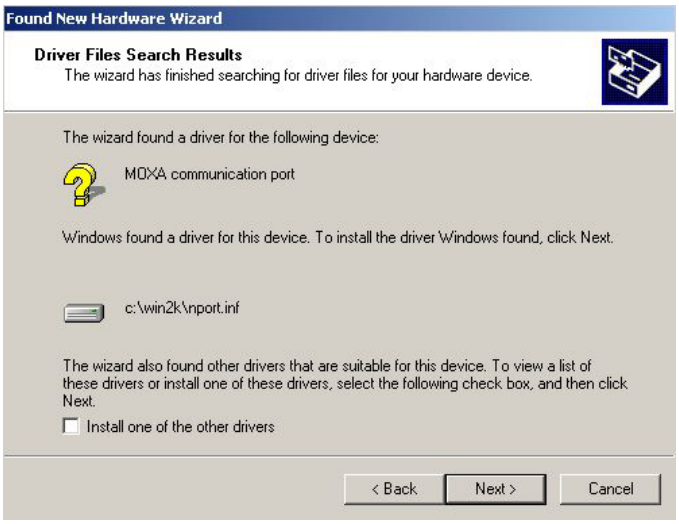
Found New Hardware Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device:
MOXA communication port
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

3. In the next window to open, select **Specify a location**, and click **Next** to continue. Locate the file and click on **OK**.


Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
MOXA communication port
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

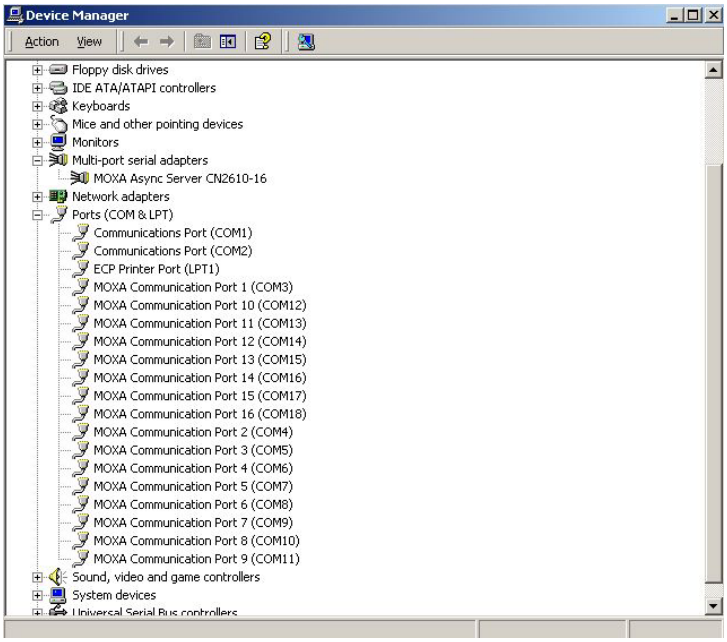


4. Click on **Next** to continue.


Found New Hardware Wizard
Driver Files Search Results
The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
MOXA communication port
Windows found a driver for this device. To install the driver Windows found, click Next.
c:\win2k\nport.inf
The wizard also found other drivers that are suitable for this device. To view a list of these drivers or install one of these drivers, select the following check box, and then click Next.
Install one of the other drivers
< Back
Next >
Cancel

5. Moxa Port 0 installation is finished. The step 1 to step 4 will be repeated for several times, depending on how many serial ports on your CN2610 product. After the installation is complete, you can find the COM ports in **Device Manager**.

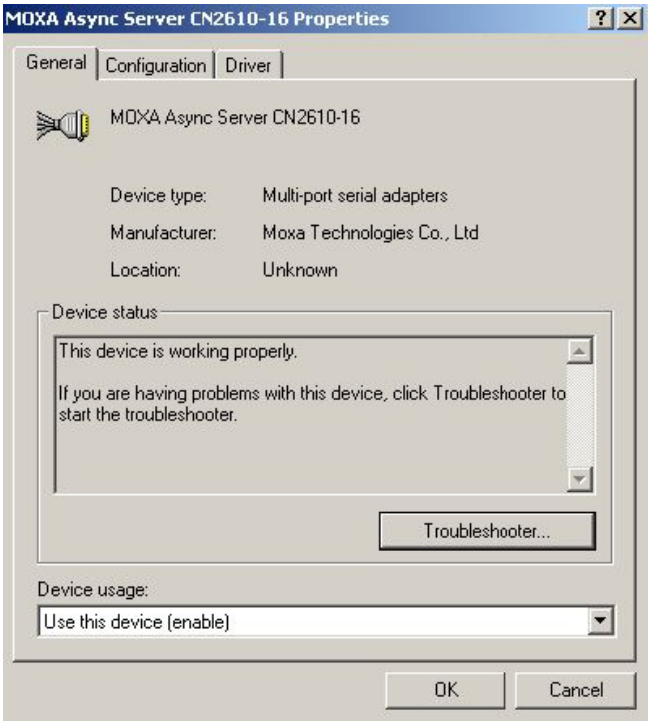
Found New Hardware Wizard
Completing the Found New Hardware Wizard
Moxa Port 0
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel


Device Manager
Action View
Floppy disk drives
IDE ATA/ATAPI controllers
Keyboards
Mice and other pointing devices
Monitors
Multi-port serial adapters
MOXA Async Server CN2610-16
Network adapters
Ports (COM & LPT)
Communications Port (COM1)
Communications Port (COM2)
ECP Printer Port (LPT1)
MOXA Communication Port 1 (COM3)
MOXA Communication Port 10 (COM12)
MOXA Communication Port 11 (COM13)
MOXA Communication Port 12 (COM14)
MOXA Communication Port 13 (COM15)
MOXA Communication Port 14 (COM16)
MOXA Communication Port 15 (COM17)
MOXA Communication Port 16 (COM18)
MOXA Communication Port 2 (COM4)
MOXA Communication Port 3 (COM5)
MOXA Communication Port 4 (COM6)
MOXA Communication Port 5 (COM7)
MOXA Communication Port 6 (COM8)
MOXA Communication Port 7 (COM9)
MOXA Communication Port 8 (COM10)
MOXA Communication Port 9 (COM11)
Sound, video and game controllers
System devices

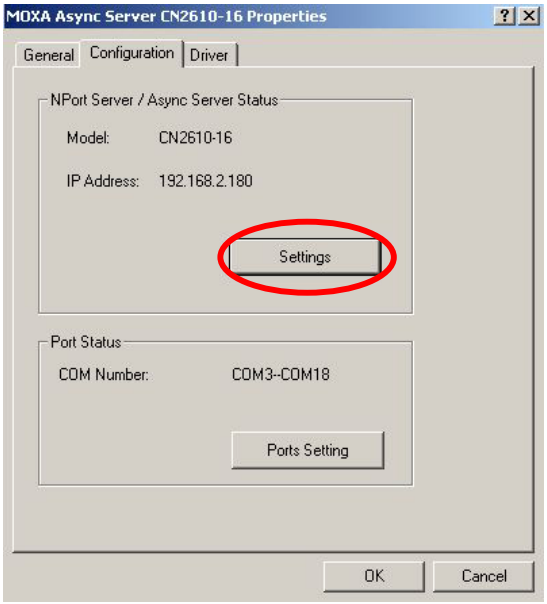
Configuring CN2610 in a Windows 2000 Environment

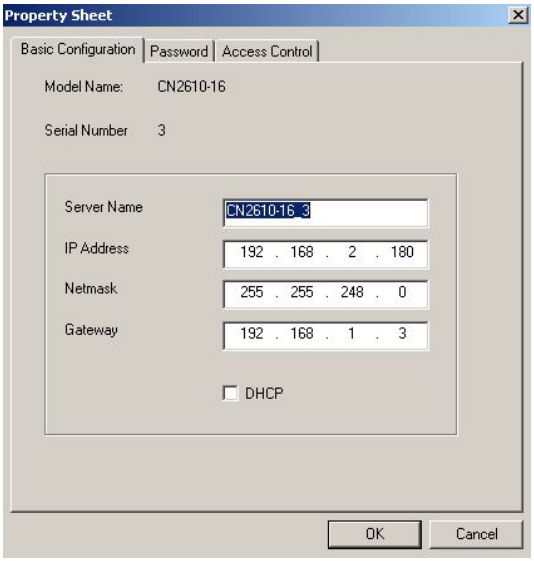
As soon as CN2610 driver is installed, the driver will guide you through CN2610's configuration. Or you can configure CN2610 later after the driver is installed. Here we will introduce Real COM Mapping configuration.

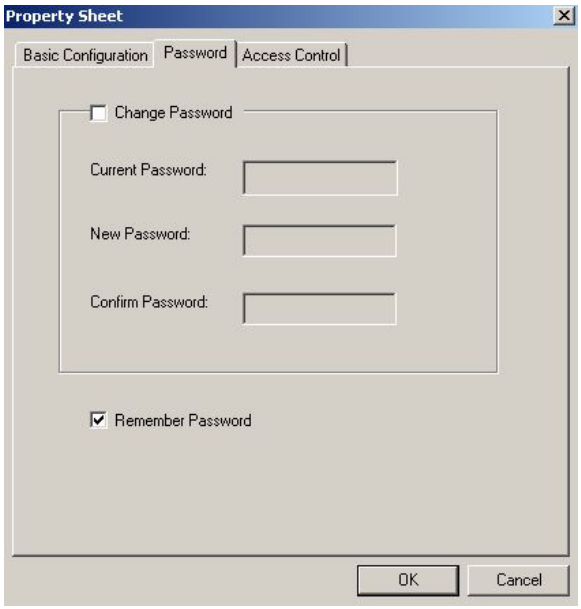
1. Click on **Device Manager-->Multiport serial adapters**. All of the installed CN2610s will be displayed. Select the CN2610 you wish to configure, and click on **Configuration** tab.

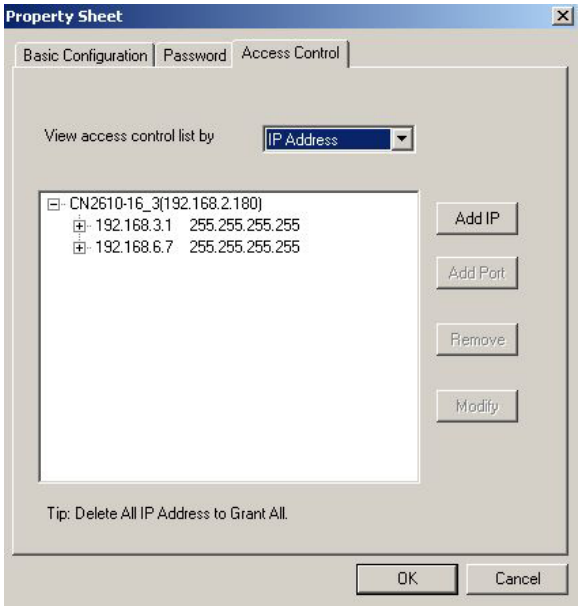


2. Click on NPort Server/Async Server Status's **Settings** to configure CN2610's Basic Configuration, Password, and Access Control.

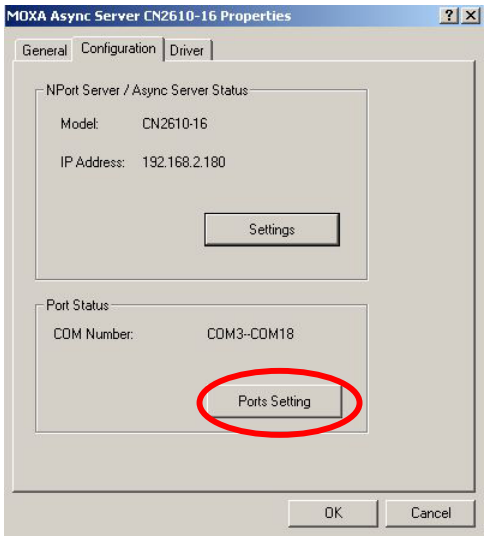


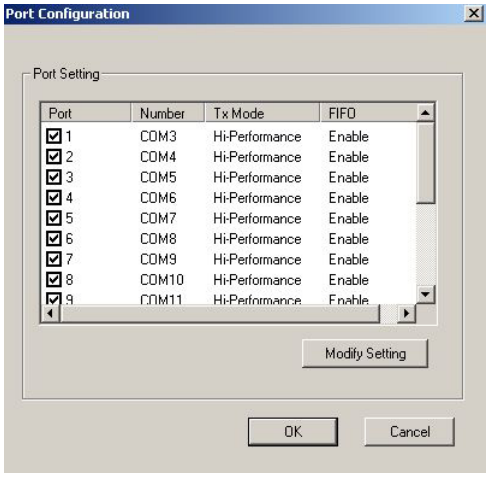


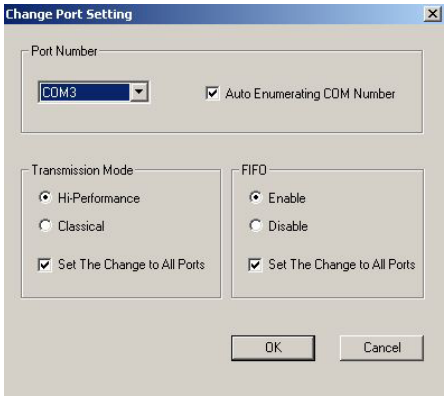

Property Sheet
Basic Configuration
Password
Access Control
Change Password
Current Password:
New Password:
Confirm Password:
Remember Password
OK
Cancel


Property Sheet
Basic Configuration
Password
Access Control
View access control list by
IP Address
CN2610-16_3(192.168.2.180)
192.168.3.1 255.255.255.255
192.168.6.7 255.255.255.255
Add IP
Add Port
Remove
Modify
Tip: Delete All IP Address to Grant All.
OK
Cancel

3. Click on **Port Setting** to configure COM port's data transmission mode and FIFO.





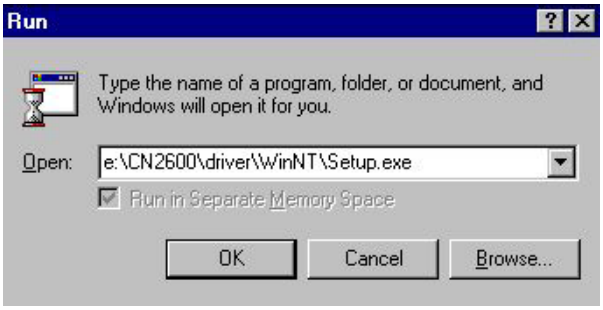


Setting up Windows 95/98/ME/NT Hosts

CN2610 Async Server uses the same driver in Windows 95/98/ME environment, and another driver in Windows NT environment. The procedures for installation are the same. For this reason, you have to make sure you are installing the correct driver. Here we use Windows NT as an example to illustrate the installation.

Installing a Server

1. Unzip the driver file located in CN2610 CD ROM to your hard disk. Locate a **Setup.exe** file and run it. And click on Next to continue.



NPort Server Pro Setup for Windows NT
Welcome to NPort Server Pro
This setup program will install the software for Moxa NPort Server Pro to your workstation. Click on the Cancel button now if you do not want to continue setting up Moxa NPort Server Pro at this time.
Next >
Cancel
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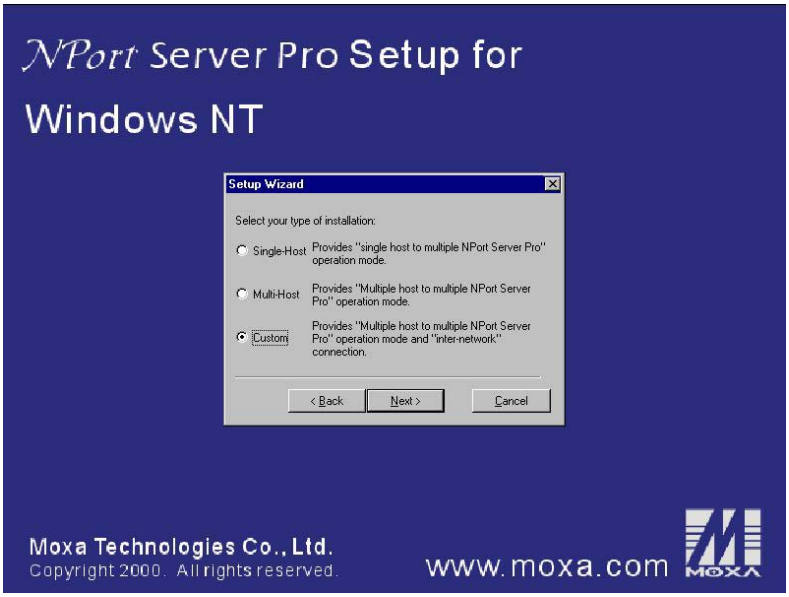
www.moxa.com

2. Select **Custom** mode, and click on **Next** to continue.


NPort Server Pro Setup for Windows NT
Setup Wizard
Select your type of installation:
Single-Host
Provides "single host to multiple NPort Server Pro" operation mode.
Multi-Host
Provides "Multiple host to multiple NPort Server Pro" operation mode.
Custom
Provides "Multiple host to multiple NPort Server Pro" operation mode and "inter-network" connection.
< Back
Next >
Cancel
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www.moxa.com

3. Click on **Next** to finish the installation.

NPort Server Pro Setup for
Windows NT
Setup Wizard
NPort Server Pro Setup has finished installing the NPort Manager Program on to your NT workstation. Click on Next to Continue.
Next>
Cancel
Moxa Technologies Co., Ltd.
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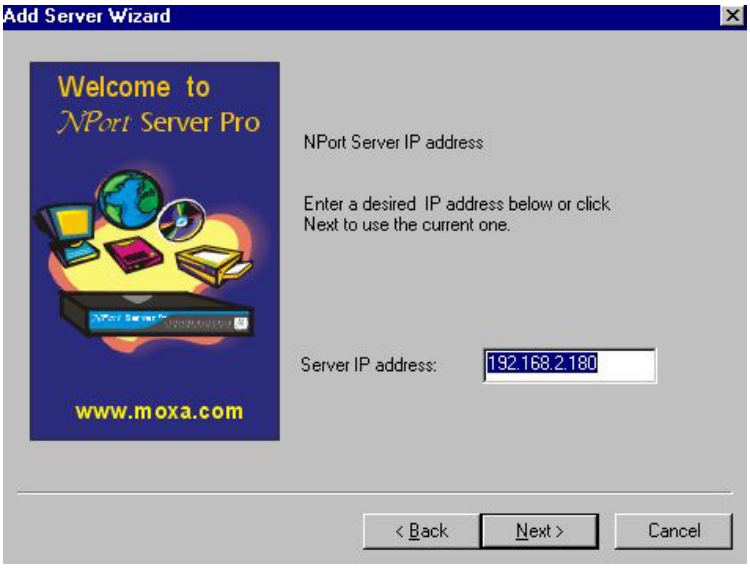
www.moxa.com

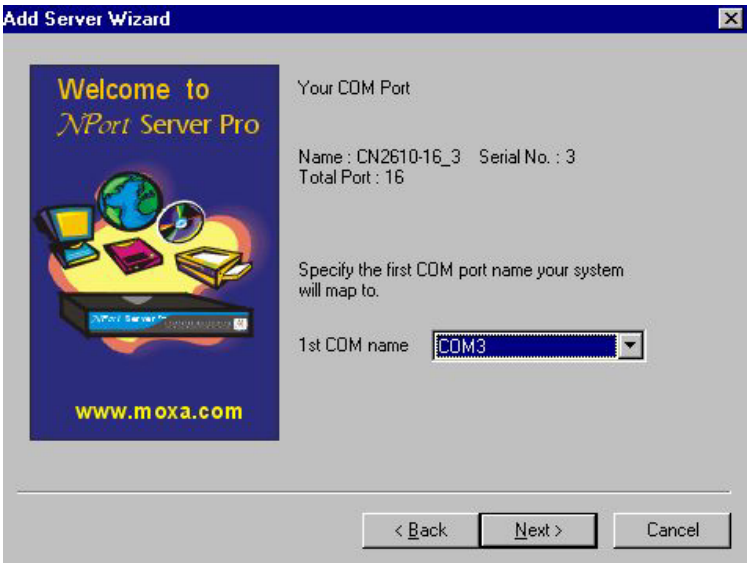
4. After the driver is installed, Add Server Wizard will start to help you configure CN2610. As illustrated below, you can either choose to enter the IP address manually, or use auto search locate servers and select one from the server list. And then click on Next to continue.

NPort Pro Manager - Custom
Server
Add Server Wizard
Welcome to
NPort Server Pro
www.moxa.com
You may add a new server now. Make sure you have connected the NPort Server Pro to the network, and then plug in the power cord before continuing.
Do you want to run Add Server Wizard now?
Yes
No, I will run Add Server wizard later.
< Back
Next >
Cancel
Ready

5. In the window that opens next, **Add Server Wizard** will ask you to enter CN2610 LAN1's IP address. Click on **Next** to continue.



6. Select the corresponding COM Port. The system will automatically map all COM Ports.

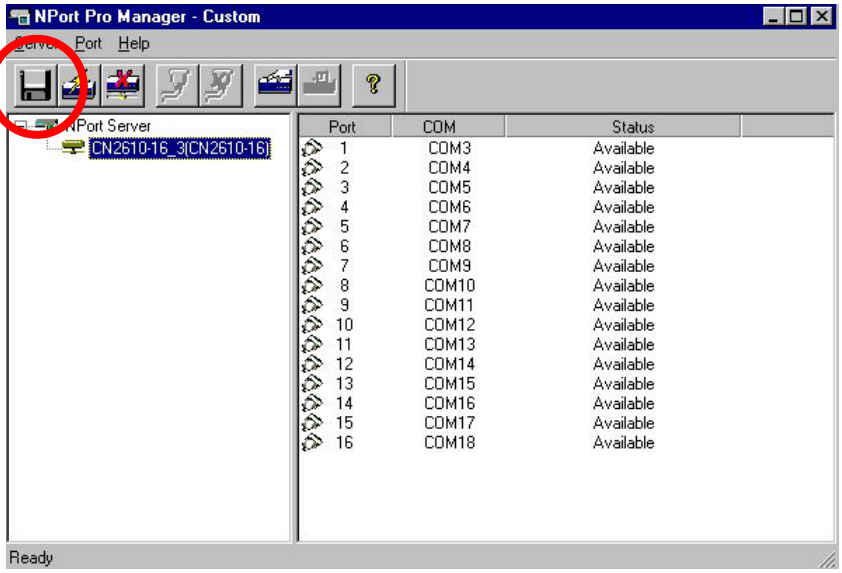


7. The next step is to set the password for this CN2610. Enter the password, and click on Next to continue.

Add Server Wizard
Welcome to
NPort Server Pro
www.moxa.com
Set Server Password
Your system has no password protection. It is strongly recommended that you set up a password to prevent misuse of the selected server.
Server Password:
Confirm Password:
Auto-Saved
< Back
Next >
Cancel

8. Add Server Wizard will show the entire information about CN2610.

9. You have to save the data after you return to the main page. Click on the disk icon on the upper left corner to map CN2610's serial ports to standard COM ports.



5

Setting up Device Control

For Device Control application, users can use standard Linux/Unix Socket programming in Linux/Unix or WinSock programming in the Windows environment to directly control devices' data transmission. In this application, users use the standard Socket programming to communicate with the CN2610, and the operation mode used is TCP RAW mode, focusing only on data transmission without serial port control or serial modem signals control. Users can also use ASPP protocol, exclusively provided by Moxa, to communicate with the CN2610.

Whether users use Linux/Unix Socket programming or Windows WinSock programming, IP is used as the communication agent between hosts and devices.

In the end of this chapter, we will use examples to explain how to use ASPP in an UNIX/Windows environment.

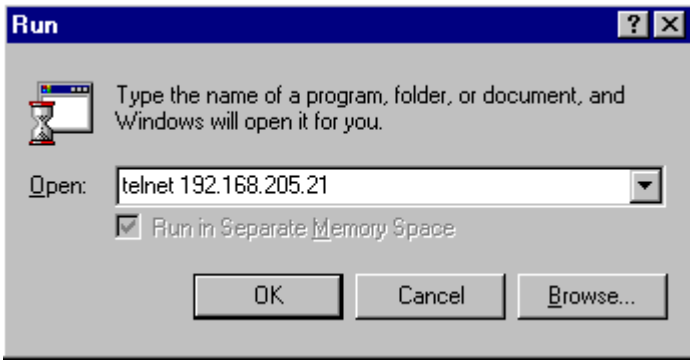
This chapter will introduce the APIs for the following functions:

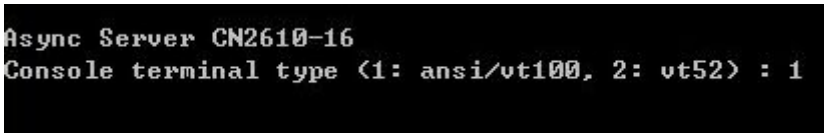
- **Configuring Port Operation Mode – Port Menu [Mode]**
  - ASPP
  - RAW
- **Configuring Port Connection Setting – Port Menu [Line]**
- **Save**
- **Restart**
- **ASPP Library Introduction**
- **ASPP Examples for Unix**
- **ASPP Examples for Windows**

Configuring Port Operation Mode – Port Menu [Mode]

Open Port Menu→Mode to install Device Control parameters..

1. To enter CN2610 **MAIN MENU**, use either Telnet from a network terminal, or connect directly to CN2610 Async Server with a console terminal. Select **ansi/vt100**, and then press **Enter**. Refer to chapter 2 for more details about how to enter **MAIN MENU**.

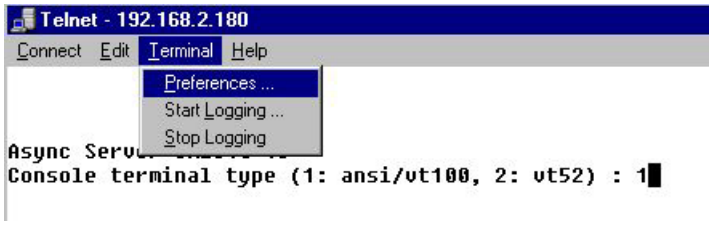


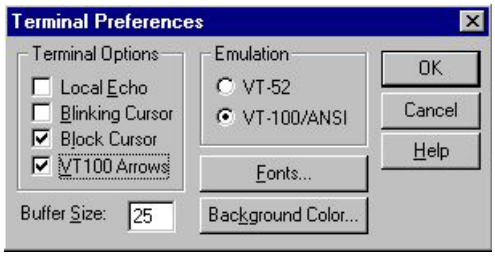


2. The table below is the **MAIN MENU** of CN2610 Async Server. Before you begin, familiarize yourself with the cursor movement functions before starting the configuration process.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

If you have problems using the arrow keys to move the cursor in Windows 9x or NT environment, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.

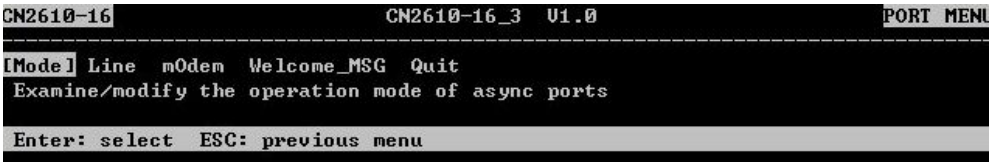




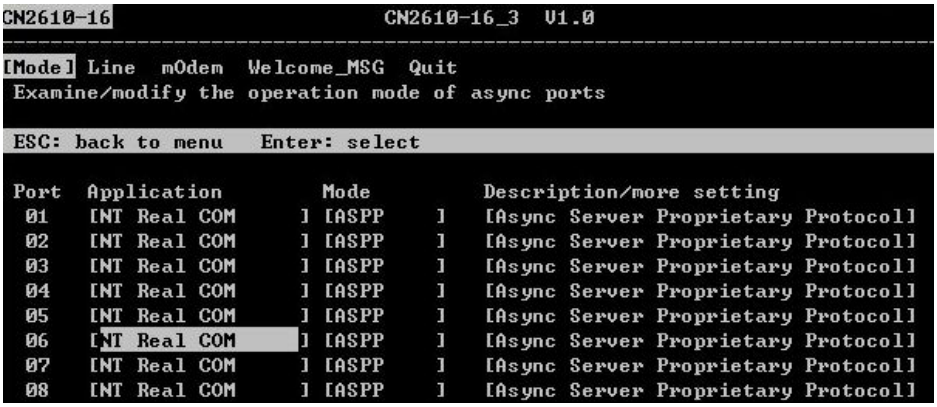
3. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

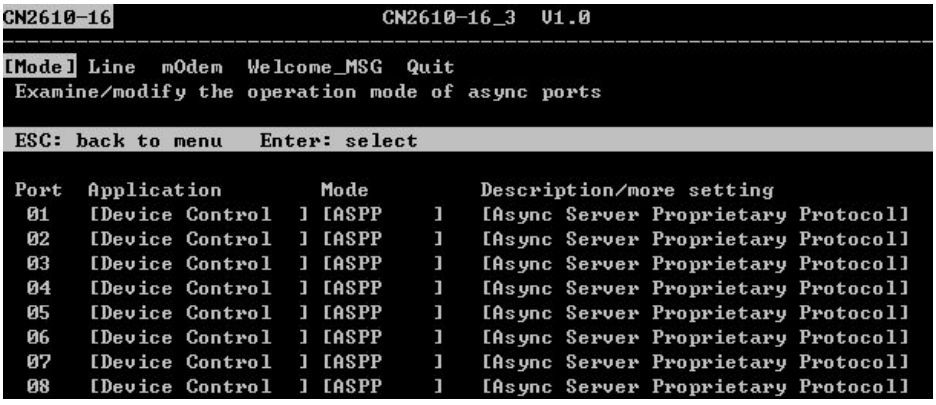
4. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
Enter: select ESC: previous menu

5. In **Mode**, use the arrow keys to move the cursor to the application corresponding to serial ports. Here we use Port 6 as an example.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
02 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
03 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
04 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
08 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

6. Repeat Step 1 to 5 to configure other device control port settings. For example, you can follow the steps described below to configure Port 1 to Port 8 for **Device Control mode** application.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Device Control] [ASPP] [Async Server Proprietary Protocol]
02 [Device Control] [ASPP] [Async Server Proprietary Protocol]
03 [Device Control] [ASPP] [Async Server Proprietary Protocol]
04 [Device Control] [ASPP] [Async Server Proprietary Protocol]
05 [Device Control] [ASPP] [Async Server Proprietary Protocol]
06 [Device Control] [ASPP] [Async Server Proprietary Protocol]
07 [Device Control] [ASPP] [Async Server Proprietary Protocol]
08 [Device Control] [ASPP] [Async Server Proprietary Protocol]

We already selected a application mode for each serial port. Now let's talk about more details on Device Control: CN2610 Device Control's ASPP/RAW mode. ASPP, which is developed by Moxa, provides an easy-to-use TCP/IP socket programming library and other useful functions.

CN2610 RAW mode allows self-definition on applications via serial data transmitted/received over the Ethernet. RAW mode has to be used in the standard TCP/IP socket programming.

ASPP Mode

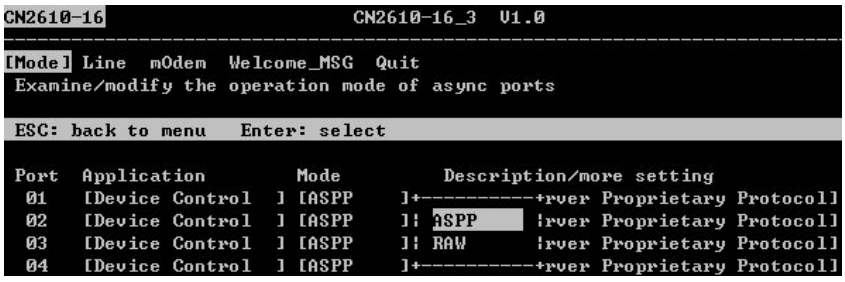
Moxa ASPP is a TCP/IP socket programming library. If you're using Moxa ASPP to program, set CN2610's serial ports as ASPP ports, and copy the ASPP library to the server for further programming. ASPP programming functions and examples are introduced at the end of the chapter.

Each physical ASPP port is divided into two logical ports: one is called command port; the other is called data port. Via command port, users can issue commands across the network to set the line's configuration parameters, such as baud rate, data bits, flow control condition, etc. Via data port, users can retrieve data through the async line.

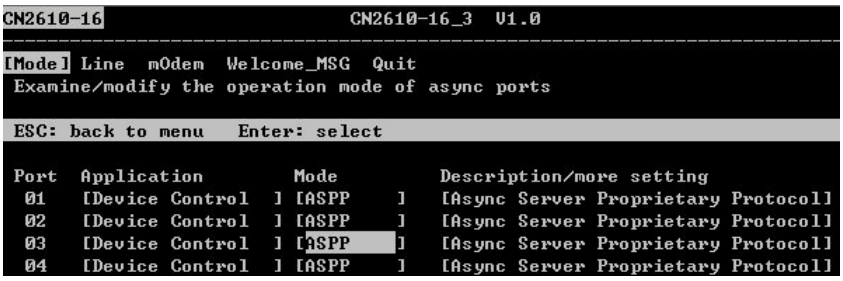
There is a unique TCP port number associated with each ASPP command and data port. The TCP port number is defined as follows:

CN2610 Port No.	Data TCP Port No.	Command TCP Port No.
01	950	966
02	951	967
03	952	968
04	953	969
05	954	970
06	955	971
07	956	972
08	957	973
09	958	974
10	959	975
11	960	976
12	961	977
13	926	978
14	963	979
15	964	980
16	965	981

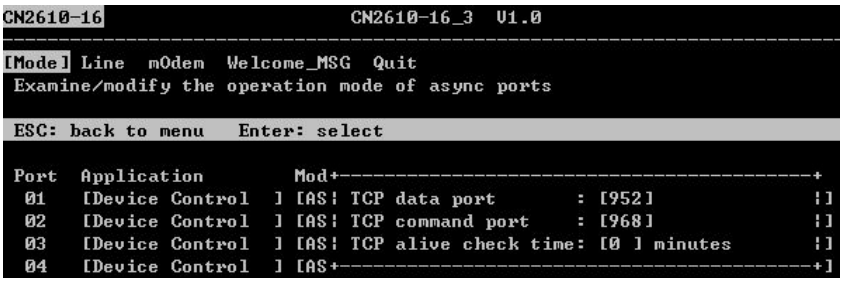
1. Move the cursor to the **Mode** column of the corresponding port, and then press **Enter** to see two modes for **Device Control** applications.


CN2610-16
CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Device Control] [ASPP]
02 [Device Control] [ASPP]
03 [Device Control] [ASPP]
04 [Device Control] [ASPP]
ASPP
RAW
rver Proprietary Protocol]

2. Select **ASPP** for device control services.


CN2610-16
CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Device Control] [ASPP] [Async Server Proprietary Protocol]
02 [Device Control] [ASPP] [Async Server Proprietary Protocol]
03 [Device Control] [ASPP] [Async Server Proprietary Protocol]
04 [Device Control] [ASPP] [Async Server Proprietary Protocol]

3. Move the cursor to the **Description/more setting** column, and then press **Enter** to open the setting window. Each serial port has an individual TCP data port number and TCP command port number. You can set the frequency for **TCP alive check time** here.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mod
01 [Device Control] [AS TCP data port : [952]
02 [Device Control] [AS TCP command port : [968]
03 [Device Control] [AS TCP alive check time: [0] minutes
04 [Device Control] [AS

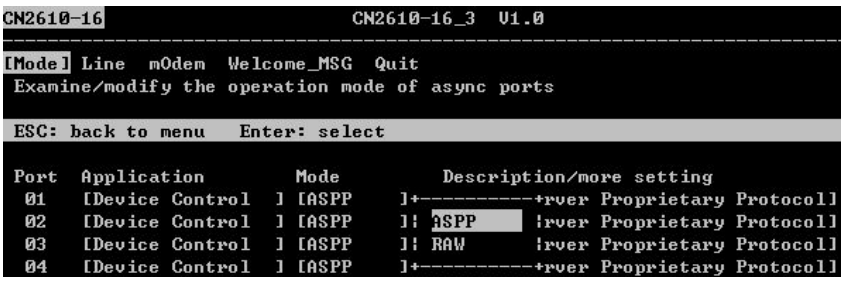
Setting	Value	Notes	Necessity
TCP port	number	Via data port, users can retrieve data through the async line.	Yes
TCP command port	number	Via command port, users can issue commands across the network to set the line's configuration parameters, such as baud rate, data bits, flow control condition, etc.	Yes
TCP alive check time	0-99 minute	Specify the time slice for checking whether the TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection.	Optional

4. Users can also configure TCP alive check time here.
5. Press **Esc** to go back to **PORT MENU**.

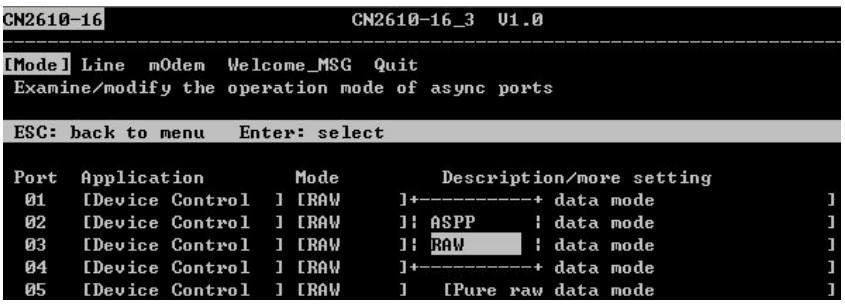
RAW Mode

RAW mode is used for standard TCP/IP socket programs. RAW mode provides a transparent communication link between the network socket program and the corresponding Async port.

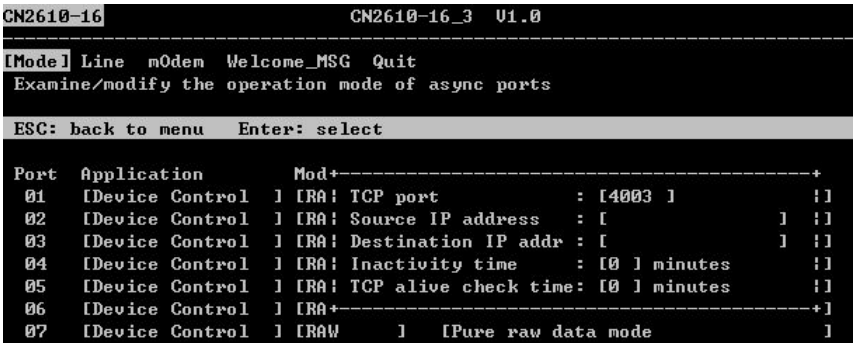
1. Move the cursor to the **Mode** column of the corresponding port, and then press **Enter** to see two modes for async device control applications.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Device Control] [ASPP]
02 [Device Control] [ASPP] ASPP rver Proprietary Protocol]
03 [Device Control] [ASPP] RAW rver Proprietary Protocol]
04 [Device Control] [ASPP]

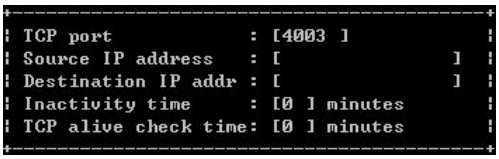
2. Select **RAW** for async device control services over TCP/IP.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Device Control] [RAW] data mode]
02 [Device Control] [RAW] ASPP data mode]
03 [Device Control] [RAW] RAW data mode]
04 [Device Control] [RAW] data mode]
05 [Device Control] [RAW] [Pure raw data mode]

3. Move the cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.


CN2610-16
CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mod
01 [Device Control] [RA TCP port : [4003]
02 [Device Control] [RA Source IP address : [ ]
03 [Device Control] [RA Destination IP addr : [ ]
04 [Device Control] [RA Inactivity time : [0] minutes
05 [Device Control] [RA TCP alive check time: [0] minutes
06 [Device Control] [RA
07 [Device Control] [RAW] [Pure raw data mode

4. **RAW Description/more setting** Window



Setting	Value	Notes	Necessity
TCP port	number	Each of CN2610's serial ports is mapped to a TCP port. To avoid conflicts with TCP ports, set the port numbers to 4001 for port1, 4002 for port2, etc., (like the default value).	Optional
Source IP address	IP address for the port	Specify an IP address for this port for application needs. If left blank, CN2610 will specify its own IP address, so you will need to a select a different TCP port number to avoid conflicts.	Optional
Destination IP addr	IP address	Assign a host IP address on the LAN for exclusive port access. If left blank, all hosts on the network will have access to this port.	Optional
Inactivity time	0/5/10/20/30/60 minutes	Idle time setting for auto-disconnection 0 min means no disconnection	Optional
TCP alive check time	0-99 minutes	Specify the time slice for checking whether the TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection.	Optional

5. Repeat the above steps to set all RAW ports.
6. Press **Esc** to go back to **PORT MENU**.

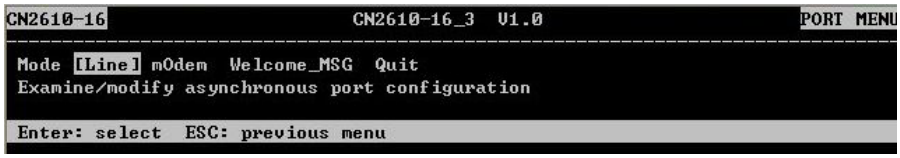
Configuring Port Setting – Port Menu [Line]

In **PORT MENU [Line]**, you can set line settings for the particular type of device being used.

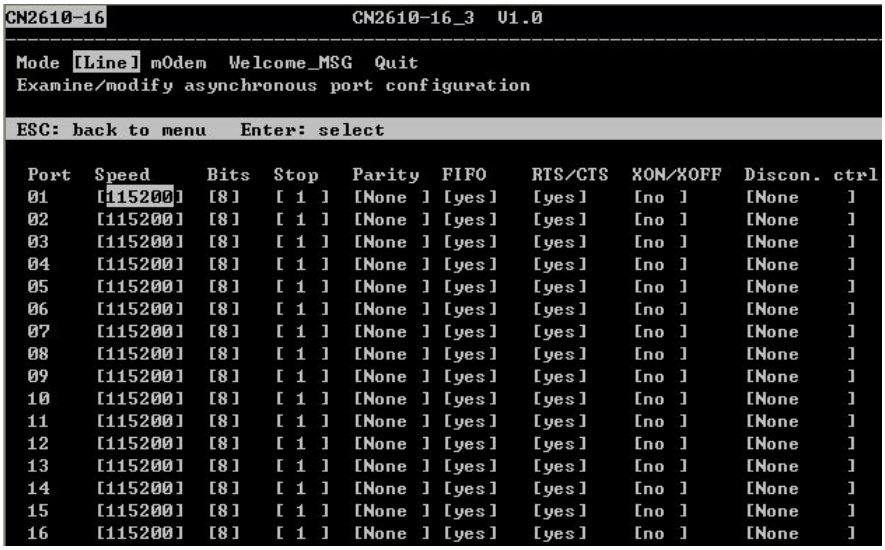
1. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

2. In **PORT MENU**, select **Line**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
Enter: select ESC: previous menu

3. Specify settings.

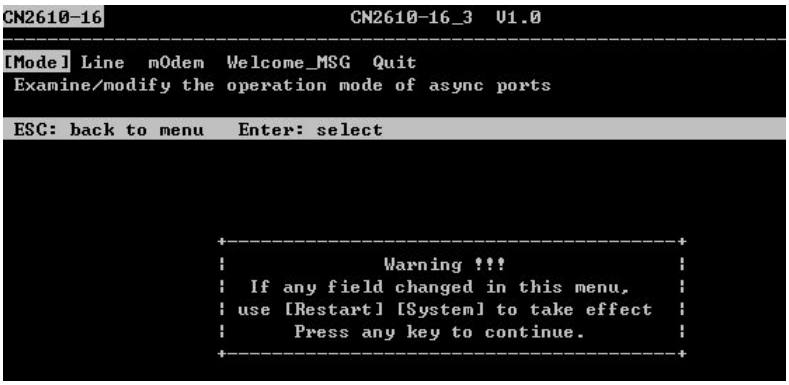

CN2610-16 CN2610-16_3 V1.0
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
ESC: back to menu Enter: select
Port Speed Bits Stop Parity FIFO RTS/CTS XON/XOFF Discon. ctrl
01 [115200] [8] [1] [None] [yes] [yes] [no] [None]
02 [115200] [8] [1] [None] [yes] [yes] [no] [None]
03 [115200] [8] [1] [None] [yes] [yes] [no] [None]
04 [115200] [8] [1] [None] [yes] [yes] [no] [None]
05 [115200] [8] [1] [None] [yes] [yes] [no] [None]
06 [115200] [8] [1] [None] [yes] [yes] [no] [None]
07 [115200] [8] [1] [None] [yes] [yes] [no] [None]
08 [115200] [8] [1] [None] [yes] [yes] [no] [None]
09 [115200] [8] [1] [None] [yes] [yes] [no] [None]
10 [115200] [8] [1] [None] [yes] [yes] [no] [None]
11 [115200] [8] [1] [None] [yes] [yes] [no] [None]
12 [115200] [8] [1] [None] [yes] [yes] [no] [None]
13 [115200] [8] [1] [None] [yes] [yes] [no] [None]
14 [115200] [8] [1] [None] [yes] [yes] [no] [None]
15 [115200] [8] [1] [None] [yes] [yes] [no] [None]
16 [115200] [8] [1] [None] [yes] [yes] [no] [None]

Setting	Value	Notes
Speed	50 – 230.4 Kbps	Transmission speed
Bits	5/6/7/8	Data bit
Stop	1/1.5/2	Stop bit
Parity	None/Even/Odd/Mark/Space	Parity check
FIFO	Yes/No	FIFO setting. Default is Yes
RTS/CTS	Yes/No	Hardware flow control
XON/XOFF	Yes/No	Software flow control
Discon. Ctrl	None/DSR off/DCD off	Inactive for these modes

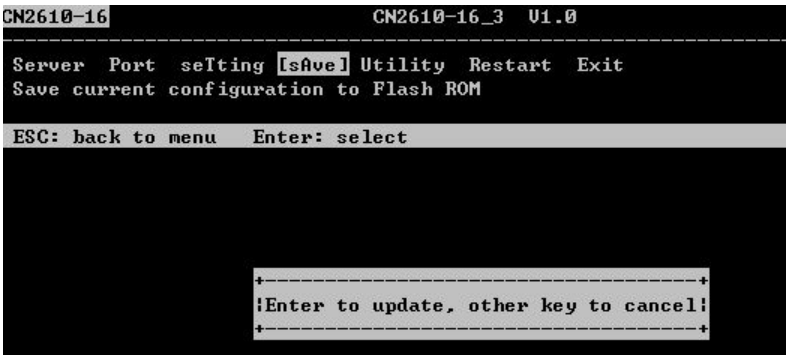
4. Repeat the above steps to set all lines.
5. Press **Esc** to return to **PORT MENU**.

Save

1. Press **Y** to save previous settings when exiting **PORT MENU**.

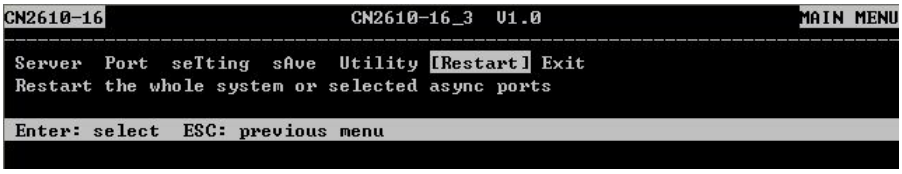

CN2610-16
CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Warning !!!
If any field changed in this menu,
use [Restart] [System] to take effect
Press any key to continue.

2. You may also save later. In **MAIN MENU**, select **sAve** to save all changed settings, and then press **Enter** to confirm.


CN2610-16
CN2610-16_3 V1.0
Server Port seTting [sAve] Utility Restart Exit
Save current configuration to Flash ROM
ESC: back to menu Enter: select
Enter to update, other key to cancel!

Restart

1. Return to **MAIN MENU** and select **Restart**.


CN2610-16
CN2610-16_3 V1.0
MAIN MENU
Server Port seTting sAve Utility [Restart] Exit
Restart the whole system or selected async ports
Enter: select ESC: previous menu

2. Select **System**, and then press **Enter** to continue.

CN2610-16
CN2610-16_3 V1.0
[System] Port Quit
Restart the Async Server
ESC: back to menu Enter: select
Warning !!!
Restart system will disconnect all ports and clear all status value
Enter: continue ESC: cancel

3. The system will restart and the Telnet/Console session will terminate. Enter **MAIN MENU** again to check whether the settings have been changed.

ASPP Library Introduction

The CN2610 software CD contains example programs that illustrate how to successfully control the ASPP port. After uncompressing the file `ASPP.tar.z`, you will be able to find several basic subroutines in the `\software\ASPP\as.h` folder.

Useful subroutines to control "ASPP" port

1. **sio_init()**- start ASPP Library
2. **sio_open(ipaddr, p)**- open serial port
3. **sio_close(fd)**- close serial port
4. **sio_ioctl(fd, baud, mode)**- configure serial port's baud rate, and even/odd etc
5. **sio_baud(fd, baud, mode)**- configure serial port's baud rate
6. **sio_flowctrl(fd, mode)**- configure hardware and/or software flow control
7. **sio_lctrl(fd, mode)**- line control.
8. **sio_lstatus(fd)**- check line status
9. **sio_flush(fd, func)**- clear input/output buffer
10. **sio_write(fd, buf, len)**- write data
11. **sio_read(fd, buf, len)**- read data
12. **sio_break(fd, time)**- send break signals
13. **sio_oqueue(fd)**- check how many data still in output buffer
14. **sio_iqueue(fd)**- check how many data in input buffer

ASPP Examples for Unix

In general, controlling devices attached to ASPP ports involves using the following procedures:

1. Create a socket for command port and connect to it.
2. Set the port configuration, e.g. baud rate, via command port.
3. Create a socket for data port and connect to it.
4. Transfer data via data port.

This example program continually sends the string "1234567890" to CN2610's ASPP port and then reads back data when program ends.

Setting:

Target port: no parity, 8 data bits, 1 stop bit, software (XON/XOFF) flow control, no hardware (RTS/CTS).

Syntax: # ./example ConsoleServerName [port(1) [Baud(9600)]]

For example:

./example CN2610 1 19200

Program sends "1234567890" to port 1 at 19200 bps baud rate and reads back any data on it. Environment: SCO UNIX. If you're using another system, modify by including the file name and other variables.

ASPP Examples for Windows

1. Program testing environment:

as.exe on windows-----(Ethernet)------CN2610 serial port---- (RS-232)-----Terminal

2. This program works like a dumb terminal. It sends all characters pressed on the keyboard to a remote connection, and then echoes the data to the screen.
3. This program sends '\r' as '\r\n' and '\n' as '\r\n'.
4. All CN2610 ASPP functions are defined in the file as.h.
5. This program can work on Windows 9x/NT/2000/XP/2003 as a dumb terminal. After completing the connection to CN2610, serial port.m will send all charaters pressed on the keyboard to the remote connection, and then echo the data to the screen. Then, the program will send '12345' to port 1 and Async Server at 19200 bps baud rate and read back any data on it.

6

Setting up UDP Communication

UDP is a non connection-oriented data transmission method. UDP has advantages of high speed and high data transmission efficiency, eliminating TCP's handshaking process. But it comes with the price of sacrificing data integrity. UDP doesn't have the functions of re-assembling and retransmitted packets like TCP when data is missing. When data needs to be transmitted fast to the Ethernet, and application software at the upper level can be responsible for data's correctness, the UDP is a very ideal transmission method.

CN2610's UDP mode supports 4 configurable groups, using UDP mode to send serial device data to the 4 IP addresses groups on the network.

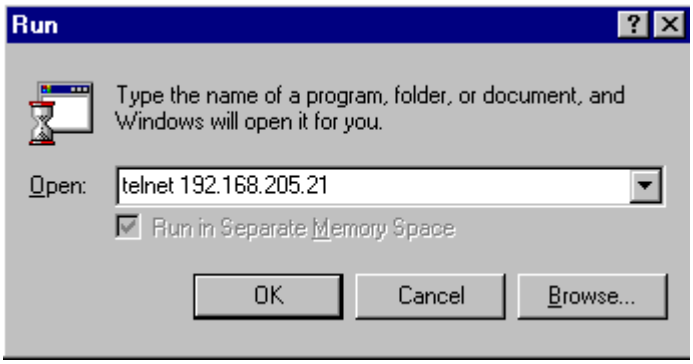
Here we introduce how to set up UDP communication via CN2610.

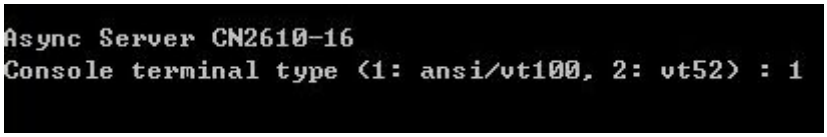
- **Configuring Port Operation Mode – Port Menu [Mode]**
  - Raw UDP Mode
- **Configuring Port Connection Setting – Port Menu [Line]**
- **Save**
- **Restart**

Configuring Port Operation Mode – Port Menu [Mode]

Open Port Menu→Mode to install UDP communication parameters.

1. To enter CN2610 **MAIN MENU**, use either Telnet from a network terminal, or connect directly to CN2610 Async Server with a console terminal. Select **ansi/vt100**, and then press **Enter**. Refer to chapter 2 for more details about how to enter **MAIN MENU**.

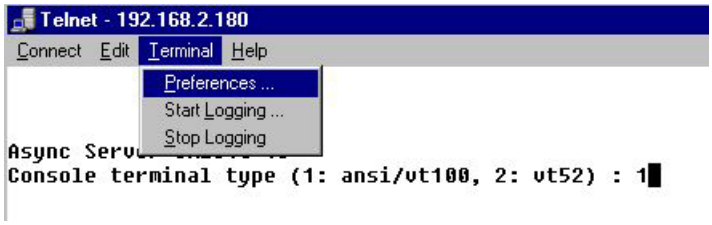


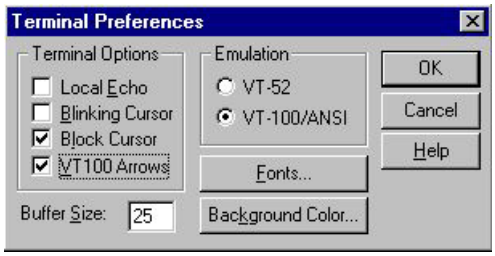


2. The table below is the **MAIN MENU** of CN2610 Async Server. Before you begin, familiarize yourself with the cursor movement functions before starting the configuration process.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

If you have problems using the arrow keys to move the cursor in Windows 9x or NT environment, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.

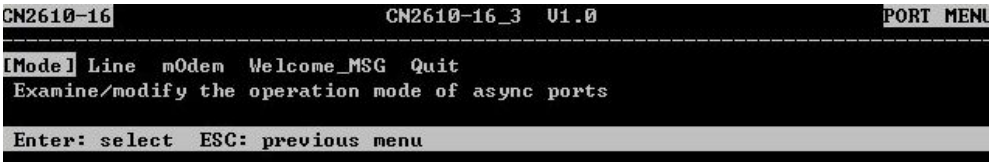




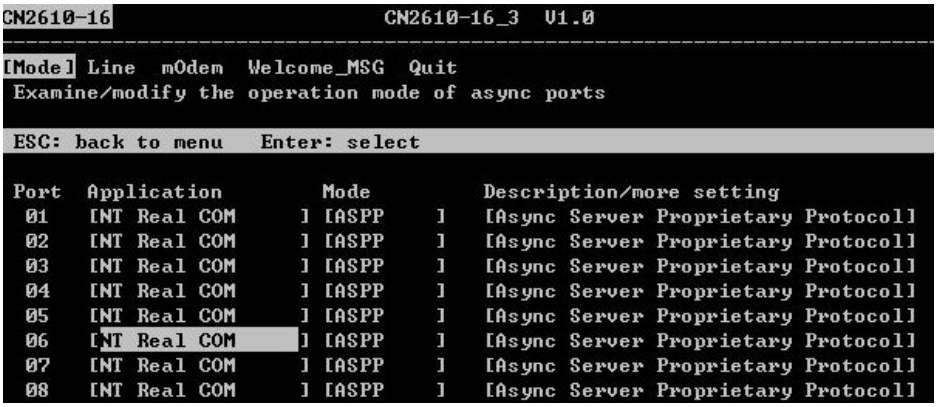
3. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

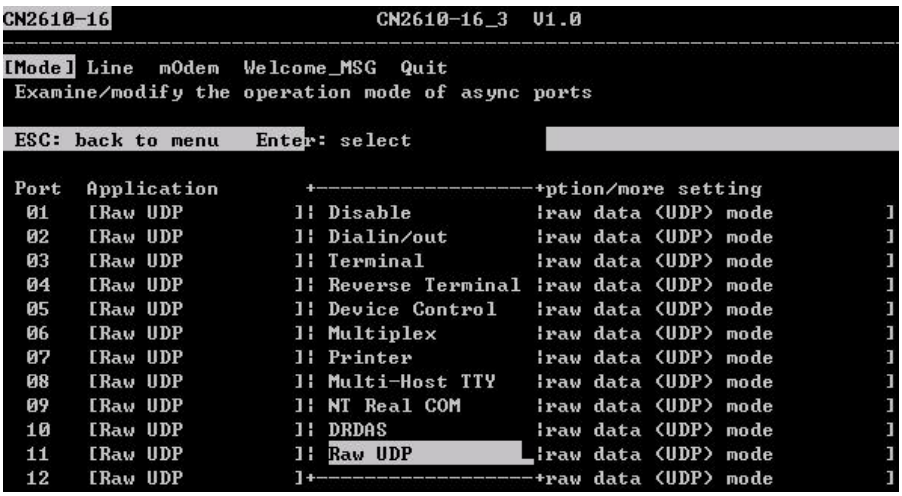
4. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
Enter: select ESC: previous menu

5. In **Mode**, use the arrow keys to move the cursor to the application corresponding to serial ports. Here we use Port 6 as an example.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
02 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
03 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
04 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
08 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

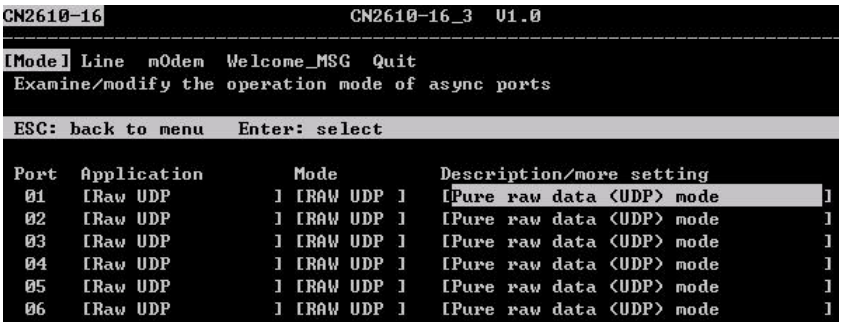
6. Press **Enter** to open application window. Use up/down arrow keys to select Raw UDP, and then press Enter to confirm.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application ption/more setting
01 [Raw UDP] Disable raw data (UDP) mode]
02 [Raw UDP] Dialin/out raw data (UDP) mode]
03 [Raw UDP] Terminal raw data (UDP) mode]
04 [Raw UDP] Reverse Terminal raw data (UDP) mode]
05 [Raw UDP] Device Control raw data (UDP) mode]
06 [Raw UDP] Multiplex raw data (UDP) mode]
07 [Raw UDP] Printer raw data (UDP) mode]
08 [Raw UDP] Multi-Host TTY raw data (UDP) mode]
09 [Raw UDP] NT Real COM raw data (UDP) mode]
10 [Raw UDP] DRDAS raw data (UDP) mode]
11 [Raw UDP] Raw UDP raw data (UDP) mode]
12 [Raw UDP] raw data (UDP) mode]

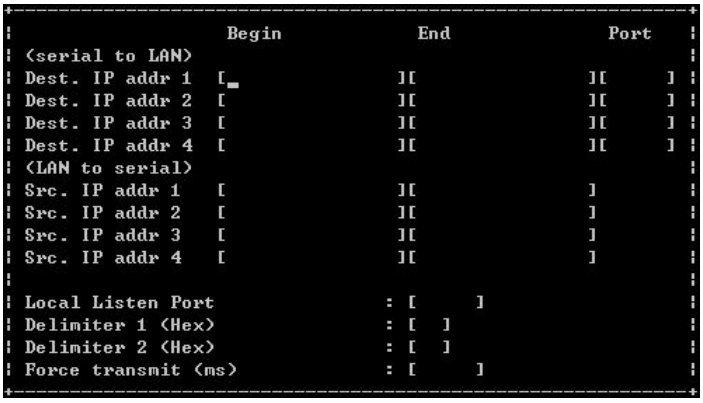
7. Repeat Step 6 to configure port settings. For example, you can follow the steps described below to configure Port 1 to Port 16 for **Raw UDP mode** application.

Raw UDP Mode

1. Move the cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Raw UDP] [RAW UDP] [Pure raw data (UDP) mode]
02 [Raw UDP] [RAW UDP] [Pure raw data (UDP) mode]
03 [Raw UDP] [RAW UDP] [Pure raw data (UDP) mode]
04 [Raw UDP] [RAW UDP] [Pure raw data (UDP) mode]
05 [Raw UDP] [RAW UDP] [Pure raw data (UDP) mode]
06 [Raw UDP] [RAW UDP] [Pure raw data (UDP) mode]

2. **UDP Description/more setting** Window.


Begin End Port
(serial to LAN)
Dest. IP addr 1 [ ][ ][ ]
Dest. IP addr 2 [ ][ ][ ]
Dest. IP addr 3 [ ][ ][ ]
Dest. IP addr 4 [ ][ ][ ]
(LAN to serial)
Src. IP addr 1 [ ][ ]
Src. IP addr 2 [ ][ ]
Src. IP addr 3 [ ][ ]
Src. IP addr 4 [ ][ ]
Local Listen Port : [ ]
Delimiter 1 (Hex) : [ ]
Delimiter 2 (Hex) : [ ]
Force transmit (ms) : [ ]

Setting	Value	Notes	Necessity
Dest. IP address 1	The IP address range to which the target data is sent. e.g. Begin: 192.168.1.1 End: 192.168.1.64	UDP packets will be sent consecutively from the first IP address to the last one. As stated on the left column, the packets will be sent to 64 IP addresses.	Yes
Dest. IP address 2/3/4	The IP address range to which the target data is sent. e.g. Begin: 192.168.2.1 End: 192.168.2.64	UDP packets will be sent consecutively from the first IP address to the last one. As stated on the left column, the packets will be sent to 64 IP addresses.	Optional
Src. IP address 1	IP address range permitted for receiving data from the network. e.g. Begin: 192.168.3.1 End: 192.168.3.64	The Legal IP addresses for receiving UDP packets. As stated on the left column, there are UDP packets from 64 IP addresses in total will be received and sent to serial ports.	Yes
Src. IP address 2/3/4	IP address range permitted for receiving data from the network.	The Legal IP addresses for receiving UDP packets. As stated on the left column, there are UDP packets from 64 IP	Optional

	e.g. Begin: 192.168.4.1 End: 192.168.4.64	addresses in total will be received and sent to serial ports.	
Local Listen Port	1-65535	The UDP port that CN2610 listens to, and those other devices must use to contact CN2610. To avoid conflicts with well-known UDP ports, the default is set to 4001.	Yes
Delimiter 1 <Hex>	00-FF	Once the CN2610 receives delimiters through its serial port, it immediately packs all data currently in its buffer and sends it out the CN2610's Ethernet port.	Optional
Delimiter 2 <Hex>	00-FF	Once the CN2610 receives delimiters through its serial port, it immediately packs all data currently in its buffer and sends it out the CN2610's Ethernet port. Note: Delimiter 2 is optional. If left blank, then Delimiter 1 alone trips clearing of the buffer. In addition, if the data received is over 1K, no matter Delimiters are received or not, they all will be packed and sent to the network via UDP mode.	Optional
Force transmit <ms>	0-65535	0: Disable this function. 1 to 65535: Forces the CN2610 to try to pack serial data received during the specified time into the same data frame via UDP mode. Optimal force transmit timeout differs according to your application, but it must be at least as large as one character interval within the specified baud rate. For example, assume that the serial port is set to 1200 bps, 8 data bits, 1 stop bit, and none for parity. In this case, the total number of bits required to send a character is 10 bits and the time required to transfer one character is 10 (bits) / 1200 (bits/s) * 1000 (ms/s) = 8.3 ms. Therefore, you should set the Force Transmit timeout to be larger than 8.3 ms. Force Transmit timeout is specified in milliseconds and must be larger than 10 ms. If the user wants to send a series of characters in a packet, the serial device attached to CN2610 should send characters without time delay larger than Force Transmit timeout between characters and the total length of data must be smaller than or equal to CN2610's internal buffer size. The serial	Optional

		communication buffer size of CN2610 is 1 K byte per port.	

3. Repeat the steps above to set up all **Raw UDP** ports.
4. Press **ESC** to return to **PORT MENU**.

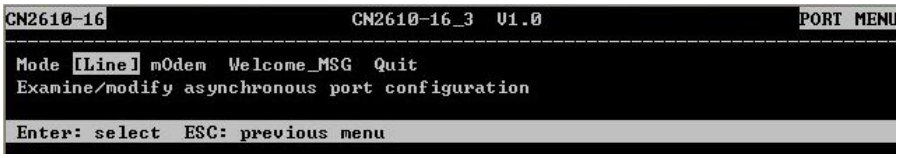
Configuring Port Setting – Port Menu [Line]

In **PORT MENU [Line]**, you can set line settings for the particular type of device being used.

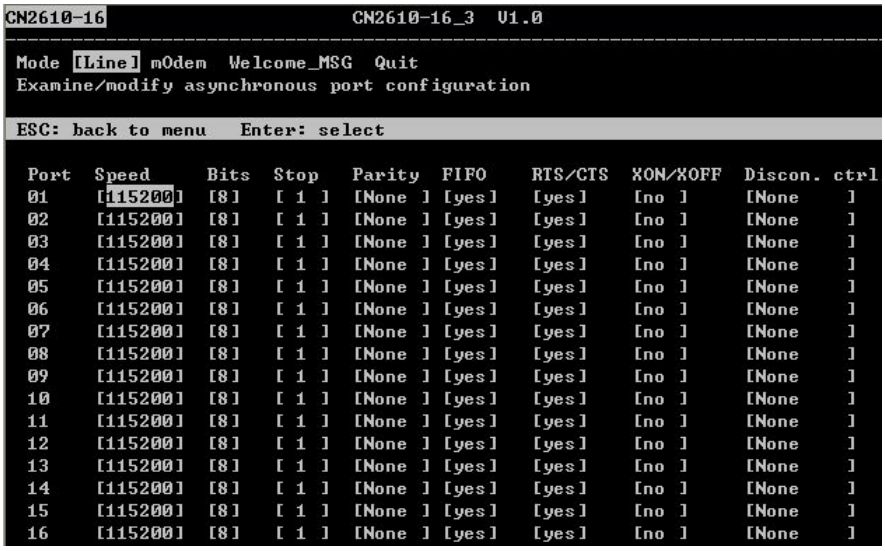
1. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seIting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

2. In **PORT MENU**, select **Line**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
Enter: select ESC: previous menu

3. Specify settings.

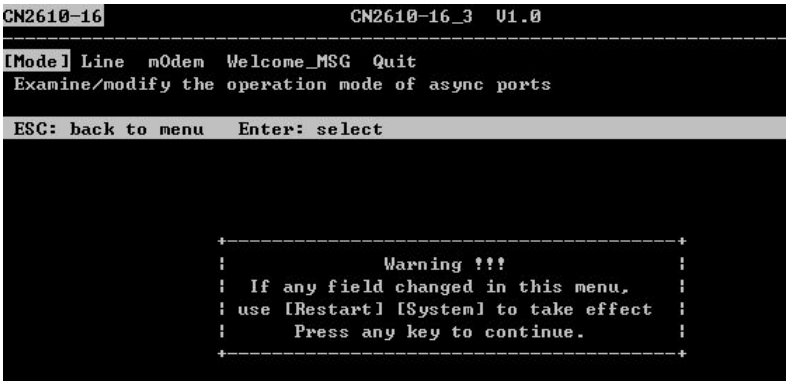

CN2610-16 CN2610-16_3 V1.0
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
ESC: back to menu Enter: select
Port Speed Bits Stop Parity FIFO RTS/CTS XON/XOFF Discon. ctrl
01 [115200] [8] [1] [None] [yes] [yes] [no] [None]
02 [115200] [8] [1] [None] [yes] [yes] [no] [None]
03 [115200] [8] [1] [None] [yes] [yes] [no] [None]
04 [115200] [8] [1] [None] [yes] [yes] [no] [None]
05 [115200] [8] [1] [None] [yes] [yes] [no] [None]
06 [115200] [8] [1] [None] [yes] [yes] [no] [None]
07 [115200] [8] [1] [None] [yes] [yes] [no] [None]
08 [115200] [8] [1] [None] [yes] [yes] [no] [None]
09 [115200] [8] [1] [None] [yes] [yes] [no] [None]
10 [115200] [8] [1] [None] [yes] [yes] [no] [None]
11 [115200] [8] [1] [None] [yes] [yes] [no] [None]
12 [115200] [8] [1] [None] [yes] [yes] [no] [None]
13 [115200] [8] [1] [None] [yes] [yes] [no] [None]
14 [115200] [8] [1] [None] [yes] [yes] [no] [None]
15 [115200] [8] [1] [None] [yes] [yes] [no] [None]
16 [115200] [8] [1] [None] [yes] [yes] [no] [None]

Setting	Value	Notes
Speed	50 – 230.4 Kbps	Transmission speed
Bits	5/6/7/8	Data bit
Stop	1/1.5/2	Stop bit
Parity	None/Even/Odd/Mark/Space	Parity check
FIFO	Yes/No	FIFO setting. Default is Yes
RTS/CTS	Yes/No	Hardware flow control
XON/XOFF	Yes/No	Software flow control
Discon. Ctrl	None/DSR off/DCD off	Inactive for these modes

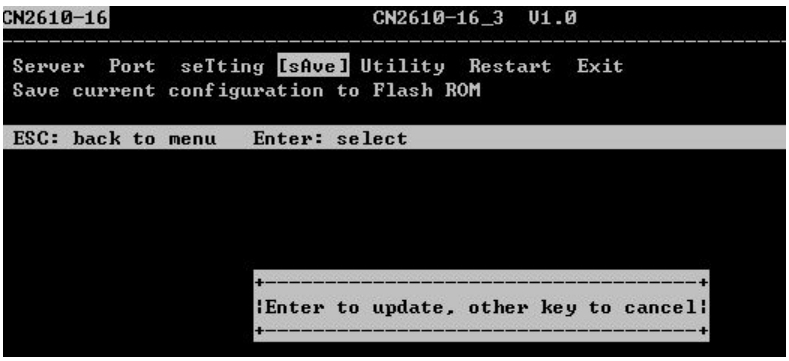
4. Repeat the above steps to set all lines.
5. Press **Esc** to return to **PORT MENU**.

Save

1. Press **Y** to save previous settings when exiting **PORT MENU**.

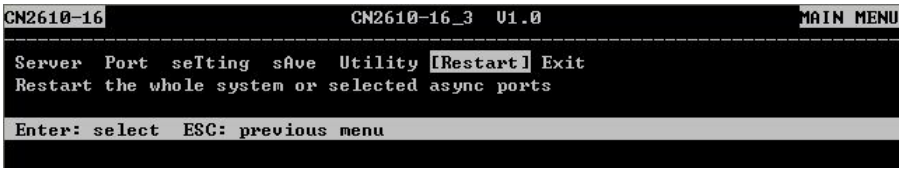

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Warning !!!
If any field changed in this menu,
use [Restart] [System] to take effect
Press any key to continue.

2. You may also save later. In **MAIN MENU**, select **sAve** to save all changed settings, and then press **Enter** to confirm.


CN2610-16 CN2610-16_3 V1.0
Server Port seTting [sAve] Utility Restart Exit
Save current configuration to Flash ROM
ESC: back to menu Enter: select
Enter to update, other key to cancel

Restart

1. Return to **MAIN MENU** and select **Restart**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port seTting sAve Utility [Restart] Exit
Restart the whole system or selected async ports
Enter: select ESC: previous menu

2. Select **System**, and then press **Enter** to continue.

CN2610-16 CN2610-16_3 V1.0
[System] Port Quit
Restart the Async Server
ESC: back to menu Enter: select
Warning !!!
Restart system will disconnect all ports and clear all status value
Enter: continue ESC: cancel

3. The system will restart and the Telnet/Console session will terminate. Enter **MAIN MENU** again to check whether the settings have been changed.

7

Setting up Dual-host Redundant Data Acquisition System

This chapter includes information about how to set up CN2610 Async Server, allowing the redundant terminal on the redundant Ethernet to access CN2610' serial ports. DRDAS mode realizes a highly redundant structure.

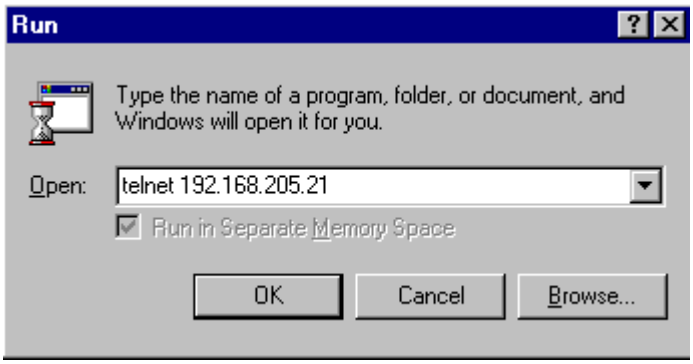
This chapter will introduce the APIs for the following functions:

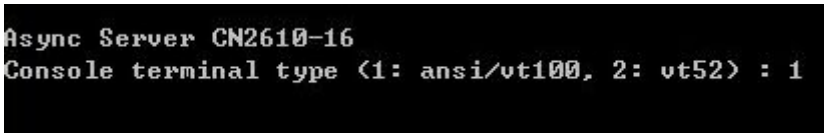
- **Configuring Port Operation Mode – Port Menu [Mode]**
  - DRDAS Mode
- **Configuring Port Connection Setting – Port Menu [Line]**
- **Save**
- **Restart**

Configuring Port Operation Mode – Port Menu [Mode]

Open Port Menu→Mode to install DRDAS mode and application parameters.

1. To enter CN2610 **MAIN MENU**, use either Telnet from a network terminal, or connect directly to CN2610 Async Server with a console terminal. Select **ansi/vt100**, and then press **Enter**. Refer to chapter 2 for more details about how to enter **MAIN MENU**.

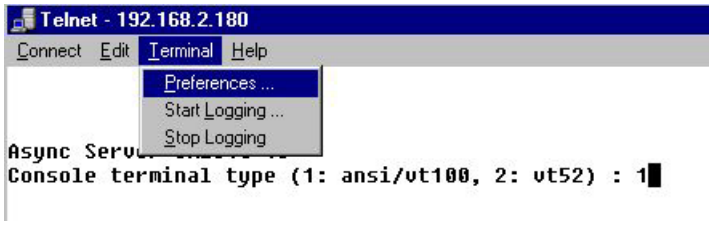


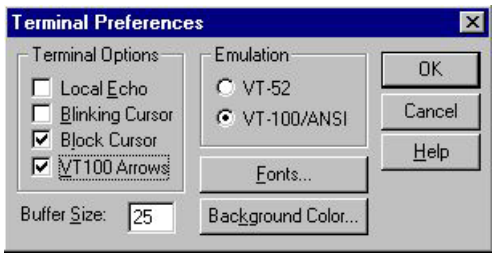


2. The table below is the **MAIN MENU** of CN2610 Async Server. Before you begin, familiarize yourself with the cursor movement functions before starting the configuration process.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

If you have problems using the arrow keys to move the cursor in Windows 9x or NT environment, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.

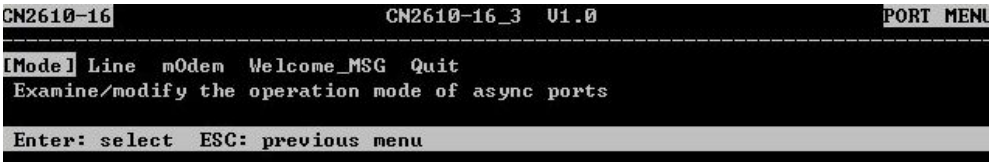




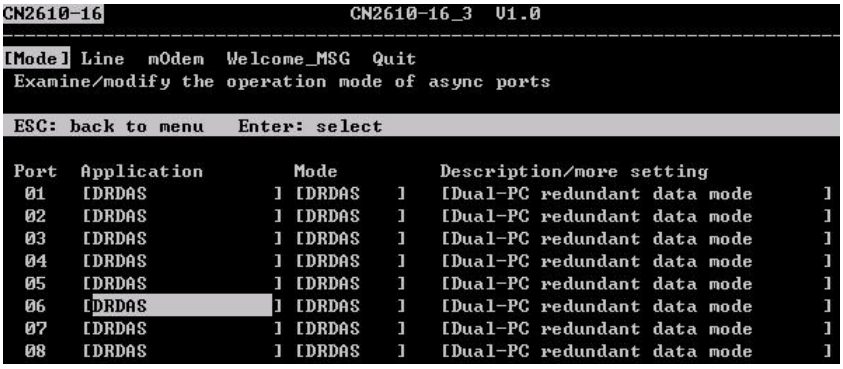
3. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

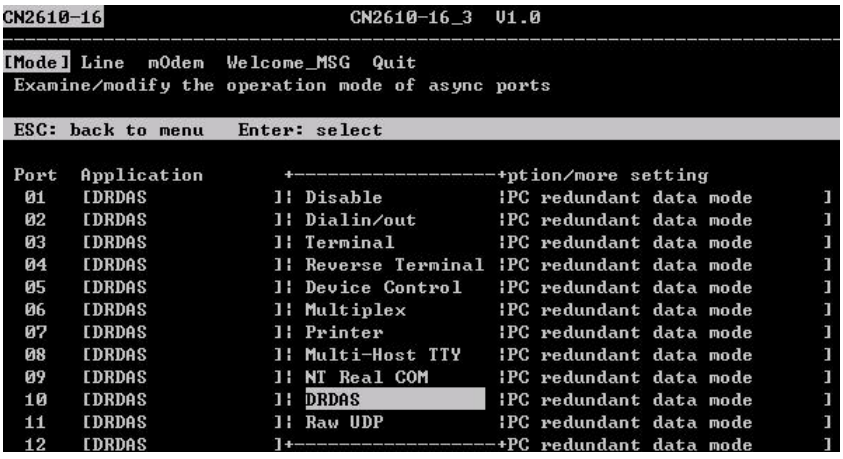
4. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
Enter: select ESC: previous menu

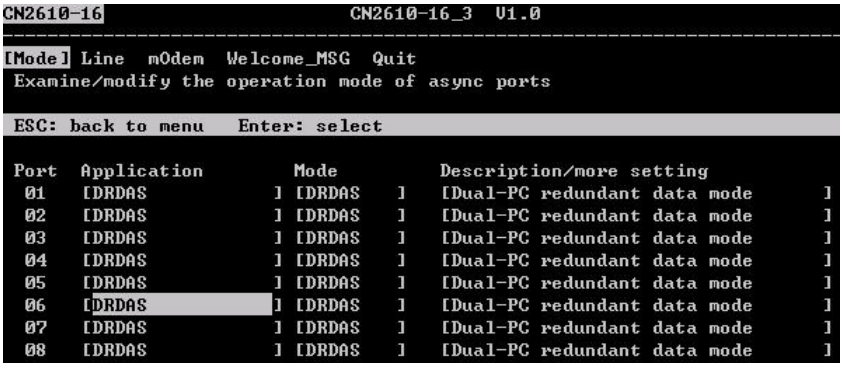
5. In **Mode**, use the arrow keys to move the cursor to the application corresponding to serial ports. Here we use Port 6 as an example.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
02 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
03 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
04 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
05 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
06 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
07 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
08 [DRDAS] [DRDAS] [Dual-PC redundant data mode]

6. Press **Enter** to open application window. Use up/down arrow keys to select DRDAS, and then press **Enter** to confirm.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application +----------+ption/more setting
01 [DRDAS]¦ Disable ¦PC redundant data mode]
02 [DRDAS]¦ Dialin/out ¦PC redundant data mode]
03 [DRDAS]¦ Terminal ¦PC redundant data mode]
04 [DRDAS]¦ Reverse Terminal ¦PC redundant data mode]
05 [DRDAS]¦ Device Control ¦PC redundant data mode]
06 [DRDAS]¦ Multiplex ¦PC redundant data mode]
07 [DRDAS]¦ Printer ¦PC redundant data mode]
08 [DRDAS]¦ Multi-Host TTY ¦PC redundant data mode]
09 [DRDAS]¦ NT Real COM ¦PC redundant data mode]
10 [DRDAS]¦ DRDAS ¦PC redundant data mode]
11 [DRDAS]¦ Raw UDP ¦PC redundant data mode]
12 [DRDAS]+----------+PC redundant data mode]

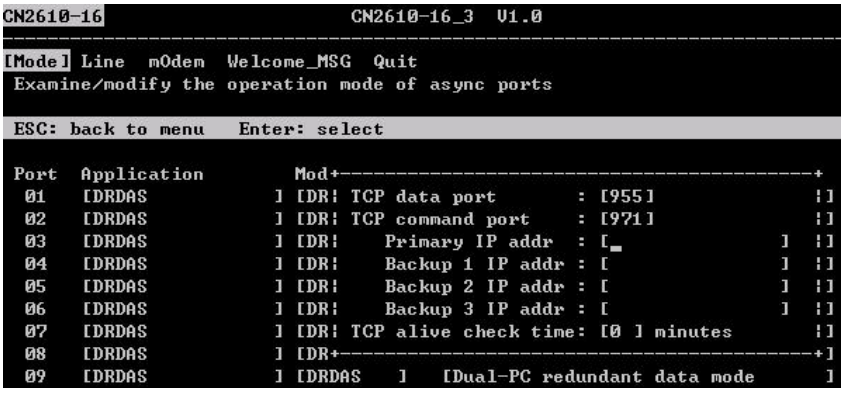
7. Repeat Step 6 to configure port settings. For example, you can follow the steps described below to configure Port 1 to Port 8 for **DRDAS** application.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
02 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
03 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
04 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
05 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
06 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
07 [DRDAS] [DRDAS] [Dual-PC redundant data mode]
08 [DRDAS] [DRDAS] [Dual-PC redundant data mode]

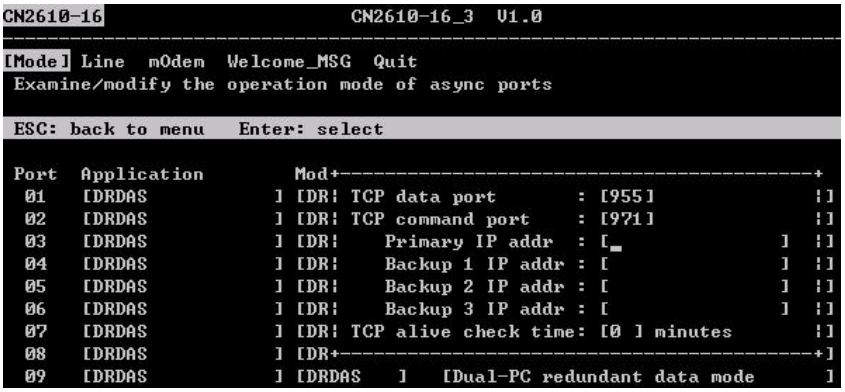
DRDAS Mode

DRDAS mode supports dual-host redundant application structure in the redundant network.

1. Move the cursor to the **Description/more setting** column, and then press **Enter** to open the setting window. Each serial port has its own TCP data port number and TCP command port number.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mod+
01 [DRDAS] [DR: TCP data port : [955] :]
02 [DRDAS] [DR: TCP command port : [971] :]
03 [DRDAS] [DR: Primary IP addr : [ ] :]
04 [DRDAS] [DR: Backup 1 IP addr : [ ] :]
05 [DRDAS] [DR: Backup 2 IP addr : [ ] :]
06 [DRDAS] [DR: Backup 3 IP addr : [ ] :]
07 [DRDAS] [DR: TCP alive check time: [0] minutes :]
08 [DRDAS] [DR+----------+]
09 [DRDAS] [DRDAS] [Dual-PC redundant data mode]

2. CN2610's each port has the ability to connect to 4 different IP addresses at the same time. Primary IP addr has to be configured as the IP address of the primary host controlling the serial port, and Backup n IP addr has to be configured as the IP address of the redundant host. When the primary host disconnects for unknown reason, CN2610 will use the switching library to let backup IPs take over. In this way, CN2610's control ability and the data flow will be transferred to the backup host, realizing high redundant system. In the mean time, the primary host's dual Ethernet ports and those of the backup host will receive the same uploaded serial data. In the specified period of time, if one of the secondary IPs tries to send commands to the serial device, the commands will be discarded once they reach the CN2610, since the Primary IP is the only IP address that can conduct by-directional transmission. The backup IPs can only receive data from the CN2610, but cannot send commands to the serial device.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mod+
01 [DRDAS] [DR: TCP data port : [955] :]
02 [DRDAS] [DR: TCP command port : [971] :]
03 [DRDAS] [DR: Primary IP addr : [ ] :]
04 [DRDAS] [DR: Backup 1 IP addr : [ ] :]
05 [DRDAS] [DR: Backup 2 IP addr : [ ] :]
06 [DRDAS] [DR: Backup 3 IP addr : [ ] :]
07 [DRDAS] [DR: TCP alive check time: [0] minutes :]
08 [DRDAS] [DR+----------+]
09 [DRDAS] [DRDAS] [Dual-PC redundant data mode]

Setting	Value	Notes	Necessity
TCP data port	number	Via data port, users can retrieve data through the async line.	Yes
TCP command port	number	Via command port, users can issue commands across the network to set the line's configuration parameters, such as baud rate, data bits, flow control condition, etc.	Yes
Primary IP addr	IP address	The primary host's IP address. If left blank, then each host on the network can't access that serial port.	Yes
Backup 1 IP addr	IP address	Backup host's IP address	Optional
Backup 2 IP addr	IP address	Backup host's IP address	Optional
Backup 3 IP addr	IP address	Backup host's IP address	Optional
TCP alive check time	0-99 minute	Specify the time slice for checking whether the TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection.	Optional

3. Press **Esc** to return to **PORT MENU**.

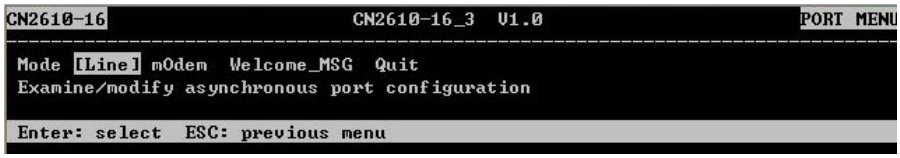
Configuring Port Setting – Port Menu [Line]

In **PORT MENU [Line]**, you can set line settings for the particular type of device being used.

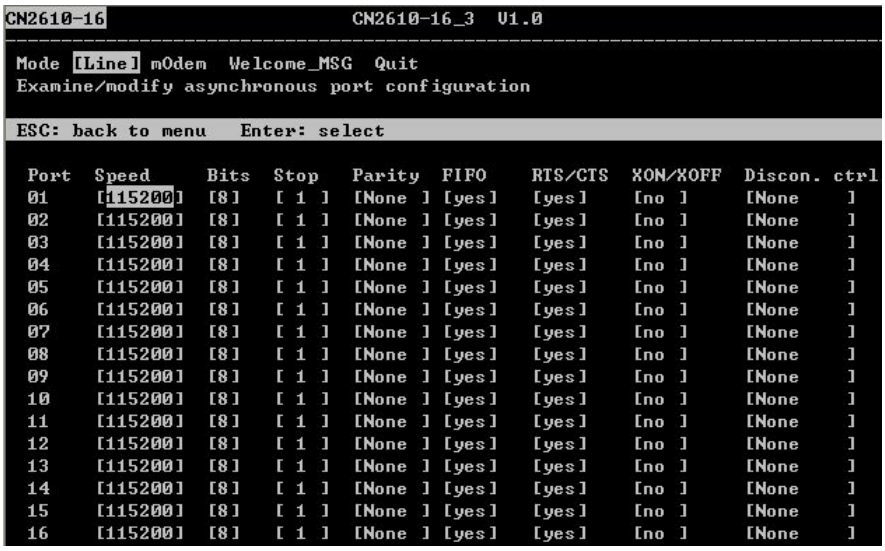
1. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

2. In **PORT MENU**, select **Line**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
Enter: select ESC: previous menu

3. Specify settings.

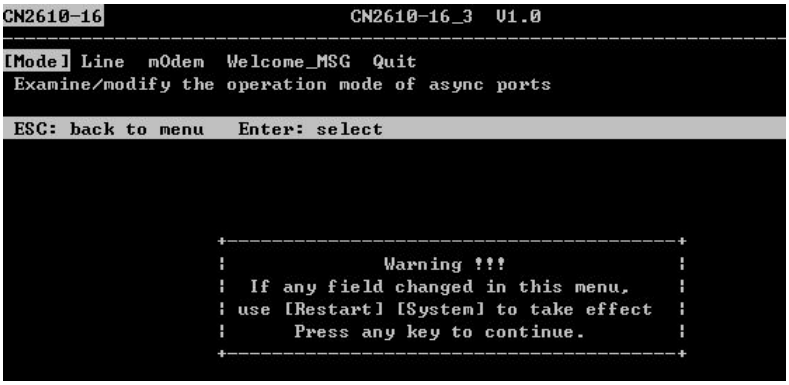

CN2610-16 CN2610-16_3 V1.0
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
ESC: back to menu Enter: select
Port Speed Bits Stop Parity FIFO RTS/CTS XON/XOFF Discon. ctrl
01 [115200] [8] [1] [None] [yes] [yes] [no] [None]
02 [115200] [8] [1] [None] [yes] [yes] [no] [None]
03 [115200] [8] [1] [None] [yes] [yes] [no] [None]
04 [115200] [8] [1] [None] [yes] [yes] [no] [None]
05 [115200] [8] [1] [None] [yes] [yes] [no] [None]
06 [115200] [8] [1] [None] [yes] [yes] [no] [None]
07 [115200] [8] [1] [None] [yes] [yes] [no] [None]
08 [115200] [8] [1] [None] [yes] [yes] [no] [None]
09 [115200] [8] [1] [None] [yes] [yes] [no] [None]
10 [115200] [8] [1] [None] [yes] [yes] [no] [None]
11 [115200] [8] [1] [None] [yes] [yes] [no] [None]
12 [115200] [8] [1] [None] [yes] [yes] [no] [None]
13 [115200] [8] [1] [None] [yes] [yes] [no] [None]
14 [115200] [8] [1] [None] [yes] [yes] [no] [None]
15 [115200] [8] [1] [None] [yes] [yes] [no] [None]
16 [115200] [8] [1] [None] [yes] [yes] [no] [None]

Setting	Value	Notes
Speed	50 – 230.4 Kbps	Transmission speed
Bits	5/6/7/8	Data bit
Stop	1/1.5/2	Stop bit
Parity	None/Even/Odd/Mark/Space	Parity check
FIFO	Yes/No	FIFO setting. Default is Yes
RTS/CTS	Yes/No	Hardware flow control
XON/XOFF	Yes/No	Software flow control
Discon. Ctrl	None/DSR off/DCD off	Inactive for these modes

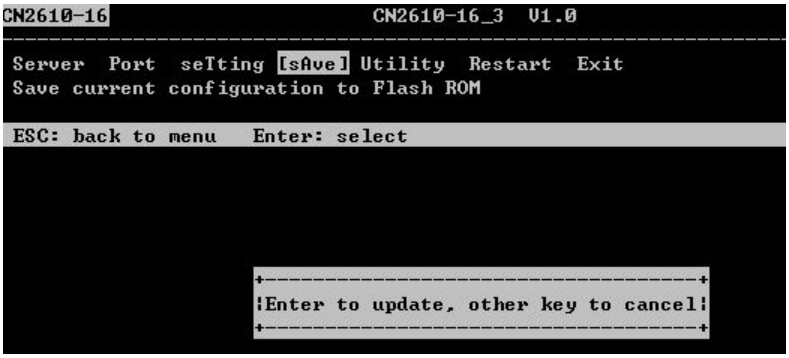
4. Repeat the above steps to set all lines.
5. Press **Esc** to return to **PORT MENU**.

Save

1. Press **Y** to save previous settings when exiting **PORT MENU**.

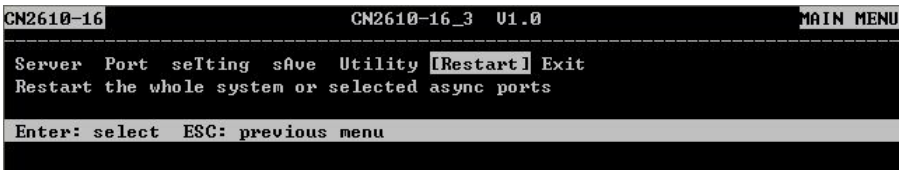

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Warning !!!
If any field changed in this menu,
use [Restart] [System] to take effect
Press any key to continue.

2. You may also save later. In **MAIN MENU**, select **sAve** to save all changed settings, and then press **Enter** to confirm.

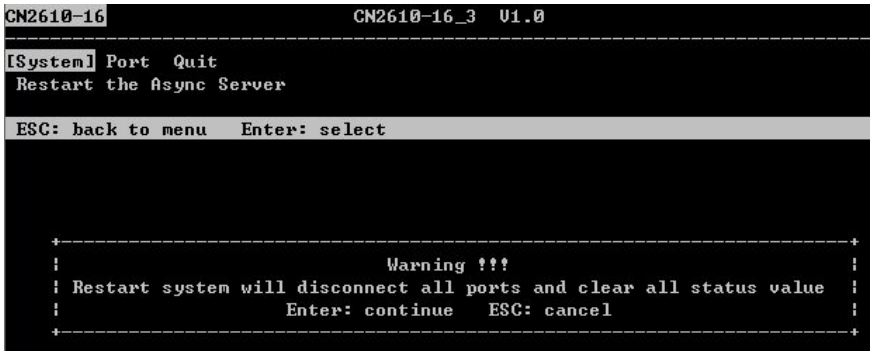

CN2610-16
CN2610-16_3 V1.0
Server Port seTting [sAve] Utility Restart Exit
Save current configuration to Flash ROM
ESC: back to menu Enter: select
Enter to update, other key to cancel

Restart

1. Return to **MAIN MENU** and select **Restart**.


CN2610-16
CN2610-16_3 V1.0
MAIN MENU
Server Port seTting sAve Utility [Restart] Exit
Restart the whole system or selected async ports
Enter: select ESC: previous menu

2. Select **System**, and then press **Enter** to continue.


CN2610-16
CN2610-16_3 V1.0
[System] Port Quit
Restart the Async Server
ESC: back to menu Enter: select
Warning !!!
Restart system will disconnect all ports and clear all status value
Enter: continue ESC: cancel

3. The system will restart and the Telnet/Console session will terminate. Enter **MAIN MENU** again to check whether the settings have been changed.

8

Setting up Console Management

This chapter includes information about how to set up CN2610 Async Server, allowing the the terminal on the Ethernet to access CN2610' serial ports.

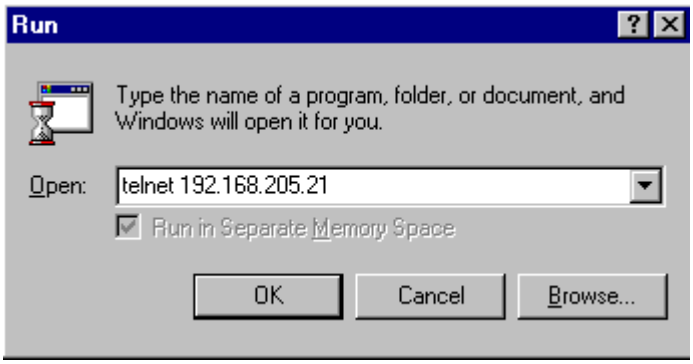
This chapter will introduce the APIs for the following functions:

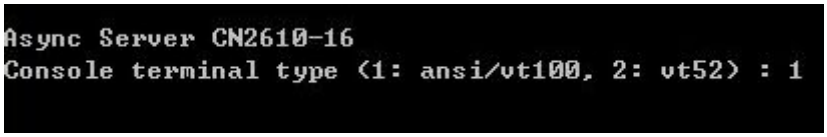
- **Configuring Port Operation Mode – Port Menu [Mode]**
  - RTelnet Mode
- **Configuring Port Connection Setting – Port Menu [Line]**
- **Optional Modem Initialization – Port Menu [Modem]**
- **Save**
- **Restart**

Configuring Port Operation Mode – Port Menu [Mode]

Open Port Menu→Mode to install Console Management mode and application parameters.

1. To enter CN2610 **MAIN MENU**, use either Telnet from a network terminal, or connect directly to CN2610 Async Server with a console terminal. Select **ansi/vt100**, and then press **Enter**. Refer to chapter 2 for more details about how to enter **MAIN MENU**.

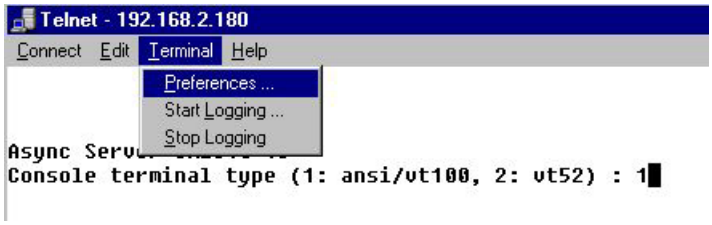


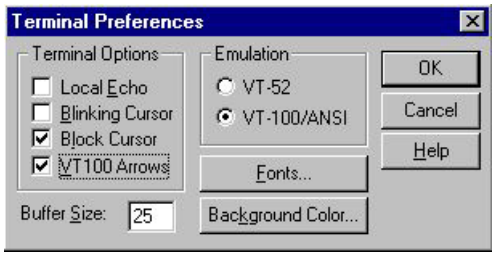


2. The table below is the **MAIN MENU** of CN2610 Async Server. Before you begin, familiarize yourself with the cursor movement functions before starting the configuration process.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

If you have problems using the arrow keys to move the cursor in Windows 9x or NT environment, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.

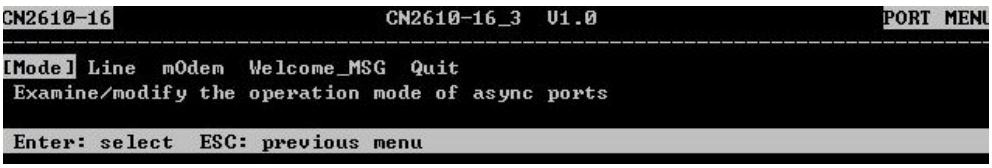




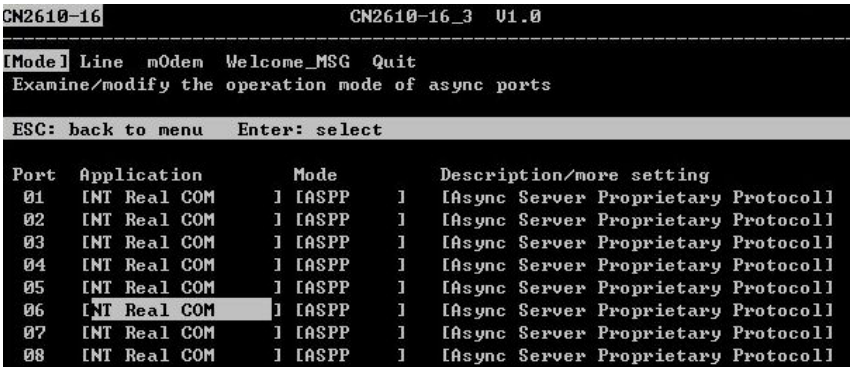
3. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

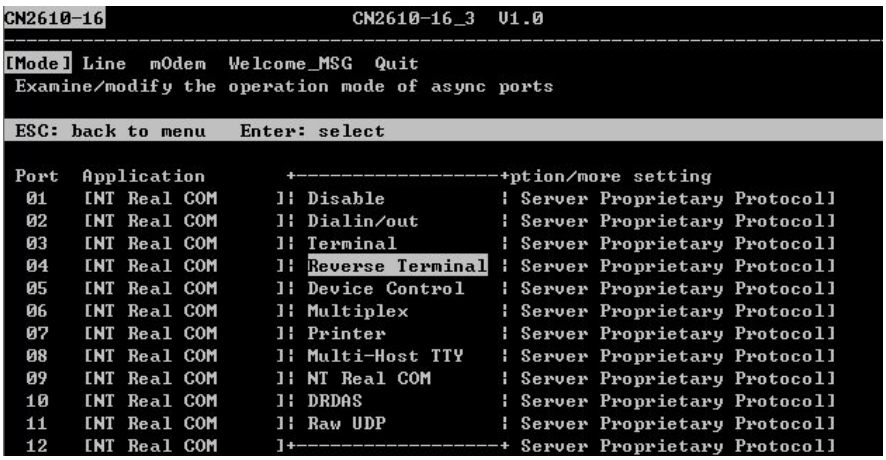
4. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
Enter: select ESC: previous menu

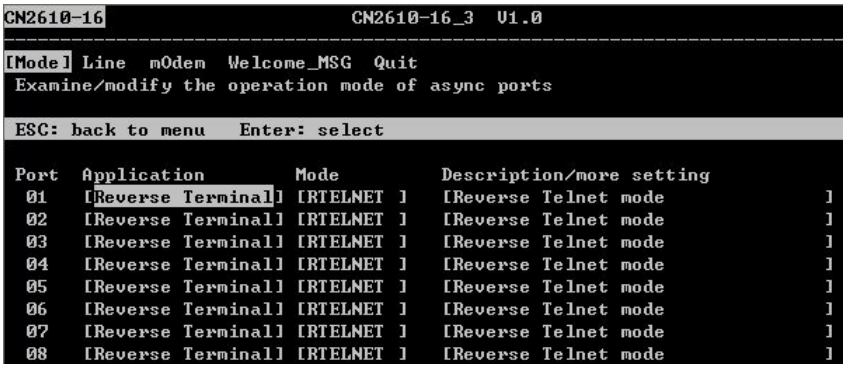
5. In **Mode**, use the arrow keys to move the cursor to the application corresponding to serial ports. Here we use Port 6 as an example.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
02 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
03 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
04 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
08 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

6. Press **Enter** to open application window. Use up/down arrow keys to select **Reverse Terminal**, and then press **Enter** to confirm.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application +----------+ption/more setting
01 [NT Real COM]| Disable | Server Proprietary Protocol]
02 [NT Real COM]| Dialin/out | Server Proprietary Protocol]
03 [NT Real COM]| Terminal | Server Proprietary Protocol]
04 [NT Real COM]| Reverse Terminal | Server Proprietary Protocol]
05 [NT Real COM]| Device Control | Server Proprietary Protocol]
06 [NT Real COM]| Multiplex | Server Proprietary Protocol]
07 [NT Real COM]| Printer | Server Proprietary Protocol]
08 [NT Real COM]| Multi-Host TTY | Server Proprietary Protocol]
09 [NT Real COM]| NT Real COM | Server Proprietary Protocol]
10 [NT Real COM]| DRDAS | Server Proprietary Protocol]
11 [NT Real COM]| Raw UDP | Server Proprietary Protocol]
12 [NT Real COM]+----------+ Server Proprietary Protocol]

7. Repeat Step 1 to 4 to configure port settings. For example, you can follow the steps described below to configure Port 1 to Port 8 for **Reverse Terminal** application.

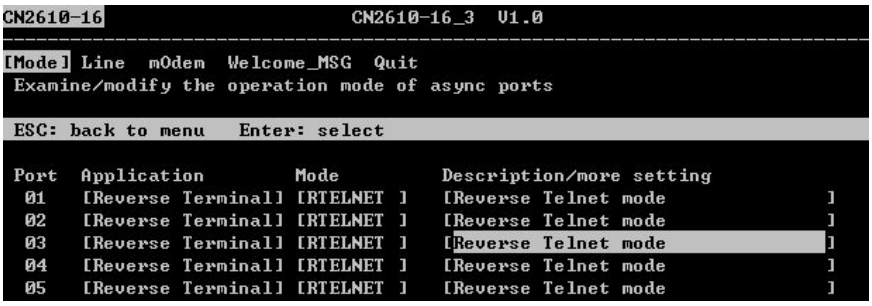

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
02 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
03 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
04 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
05 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
06 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
07 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
08 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]

CN2610 provides an Rtelnet mode for the reverse terminal application. Rtelnet mode allows Ethernet hosts to access serial hosts attached to CN2610's serial ports, the reverse direction provided by CN2610's terminal application.

RTelnet Mode

Reverse Telnet, or RTELNET, supports the Telnet program used by Ethernet hosts to login to serial hosts. Ethernet hosts recognize serial ports by the specified source IP address, or by the TCP port number followed by CN2610's IP address.

1. Move the cursor to the **Description/more setting** column, and then press **Enter** to open the setting window. Each serial port has its own TCP data port number and TCP command port number.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
02 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
03 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
04 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
05 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]

2. **RTELNET Description/More Setting** window.

TCP port : [4003]
Source IP address : [ ]
Destination IP addr : [ ]
Inactivity time : [0] minutes
Map keys <CR-LF> to : [CR-LF]
Authentication type : [none]
TCP alive check time: [0] minutes

Setting	Value	Notes	Necessity
TCP port	number	Each of CN2610's serial ports is mapped to a TCP port. To avoid conflicts with TCP ports, set port numbers to 4001 for port1, 4002 for port2, etc. (like the default values).	Optional
Source IP address	IP address for the port	Specify an IP address for this port for application needs. If left blank, CN2610 will specify its own IP address, so you will need to set different TCP port numbers to avoid conflicts.	Optional
Destination IP addr	IP address	Assign a host IP address on the LAN for exclusive port access. If left blank, all hosts on the network will have access to this port.	Optional
Map Keys <CR-LF> to	CR/LF/CR-LF	When you enter <CR-LF> string, CN2610 will determine whether to send <CR>, <LF>, or <CR-LF>.	Optional
Inactivity time	0-99 minutes	Idle time setting for auto-disconnection. 0 min means no disconnection.	Optional
Authentication type	None/local /server	None: no certification needed. Local: Check the ID according to the User_table in SERVER MENU. Server: Check ID according to the external RADIUS server. Refer to Appendix B for RADIUS installation.	Optional
TCP alive check time	0-99 minutes	Specify the time slice for checking whether the TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection.	Optional

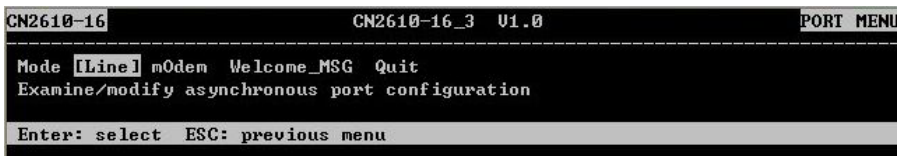
3. Repeat the steps above to set all RTELNET ports.
4. Press **Esc** to return to **PORT MENU**.

Configuring Port Setting – Port Menu [Line]

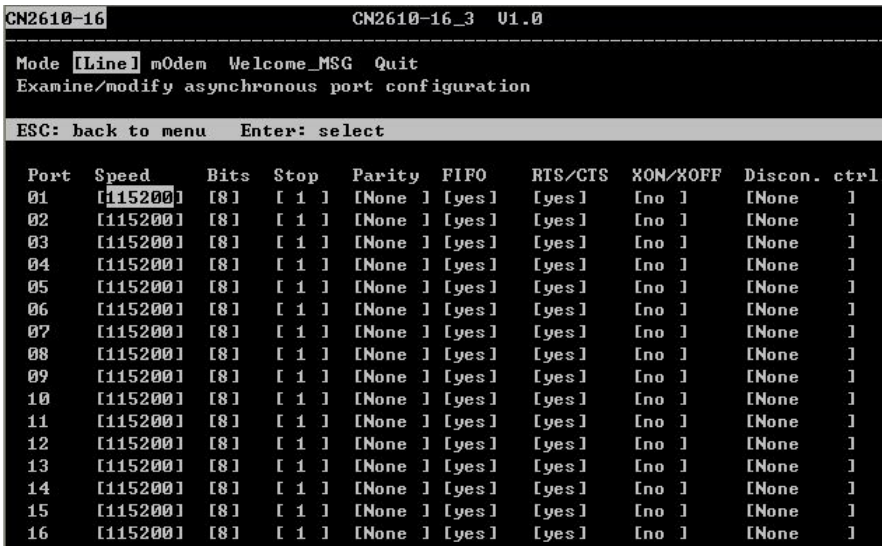
In **PORT MENU [Line]**, you can set line settings for the particular type of device being used.

1. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

2. In **PORT MENU**, select **Line**, and then press **Enter**.



3. Specify settings.

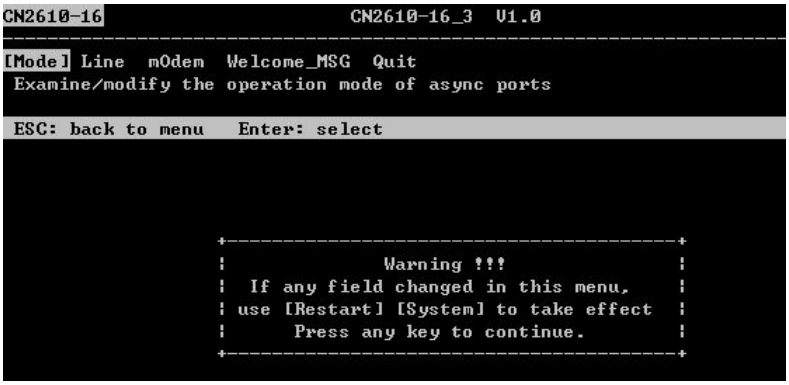

CN2610-16 CN2610-16_3 V1.0
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
ESC: back to menu Enter: select
Port Speed Bits Stop Parity FIFO RTS/CTS XON/XOFF Discon. ctrl
01 [115200] [8] [1] [None] [yes] [yes] [no] [None]
02 [115200] [8] [1] [None] [yes] [yes] [no] [None]
03 [115200] [8] [1] [None] [yes] [yes] [no] [None]
04 [115200] [8] [1] [None] [yes] [yes] [no] [None]
05 [115200] [8] [1] [None] [yes] [yes] [no] [None]
06 [115200] [8] [1] [None] [yes] [yes] [no] [None]
07 [115200] [8] [1] [None] [yes] [yes] [no] [None]
08 [115200] [8] [1] [None] [yes] [yes] [no] [None]
09 [115200] [8] [1] [None] [yes] [yes] [no] [None]
10 [115200] [8] [1] [None] [yes] [yes] [no] [None]
11 [115200] [8] [1] [None] [yes] [yes] [no] [None]
12 [115200] [8] [1] [None] [yes] [yes] [no] [None]
13 [115200] [8] [1] [None] [yes] [yes] [no] [None]
14 [115200] [8] [1] [None] [yes] [yes] [no] [None]
15 [115200] [8] [1] [None] [yes] [yes] [no] [None]
16 [115200] [8] [1] [None] [yes] [yes] [no] [None]

Setting	Value	Notes
Speed	50 – 230.4 Kbps	Transmission speed
Bits	5/6/7/8	Data bit
Stop	1/1.5/2	Stop bit
Parity	None/Even/Odd/Mark/Space	Parity check
FIFO	Yes/No	FIFO setting. Default is Yes
RTS/CTS	Yes/No	Hardware flow control
XON/XOFF	Yes/No	Software flow control
Discon. Ctrl	None/DSR off/DCD off	Inactive for these modes

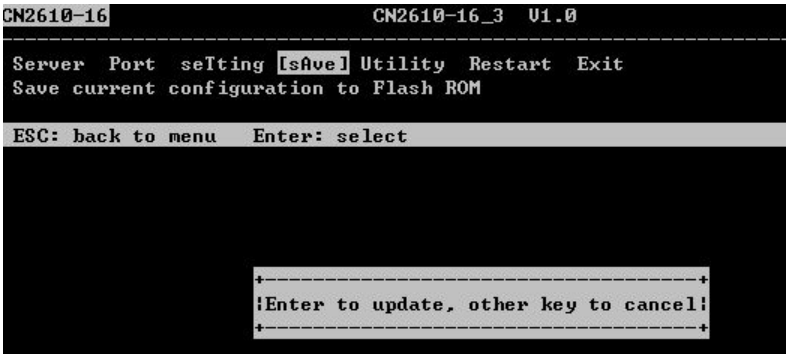
4. Repeat the above steps to set all lines.
5. Press **Esc** to return to **PORT MENU**.

Save

1. Press **Y** to save previous settings when exiting **PORT MENU**.

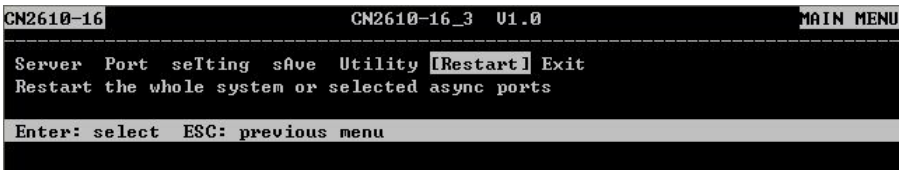

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Warning !!!
If any field changed in this menu,
use [Restart] [System] to take effect
Press any key to continue.

2. You may also save later. In **MAIN MENU**, select **sAve** to save all changed settings, and then press **Enter** to confirm.

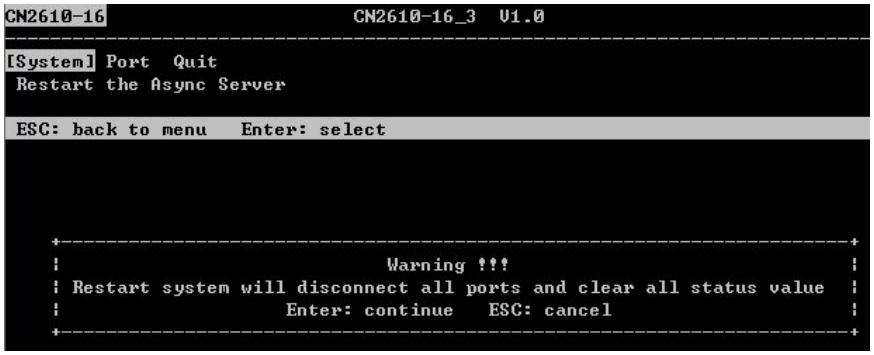

CN2610-16
CN2610-16_3 V1.0
Server Port seTting [sAve] Utility Restart Exit
Save current configuration to Flash ROM
ESC: back to menu Enter: select
Enter to update, other key to cancel

Restart

1. Return to **MAIN MENU** and select **Restart**.


CN2610-16
CN2610-16_3 V1.0
MAIN MENU
Server Port seTting sAve Utility [Restart] Exit
Restart the whole system or selected async ports
Enter: select ESC: previous menu

2. Select **System**, and then press **Enter** to continue.


CN2610-16
CN2610-16_3 V1.0
[System] Port Quit
Restart the Async Server
ESC: back to menu Enter: select
Warning !!!
Restart system will disconnect all ports and clear all status value
Enter: continue ESC: cancel

3. The system will restart and the Telnet/Console session will terminate. Enter **MAIN MENU** again to check whether the settings have been changed.

9

Setting up Terminal Access

We describe here the steps for configuring Moxa CN2610 as a Terminal Server. CN2610 provides Telnet and Rlogin protocols for terminals to establish connections with UNIX hosts. Two terminal modes are supported, ASCII terminal with up to 8 simultaneous sessions, and Binary terminal with one session for one user. Terminals can either be connected directly to one of CN2610's RS-232 ports, or connected from a distance by using external modems.

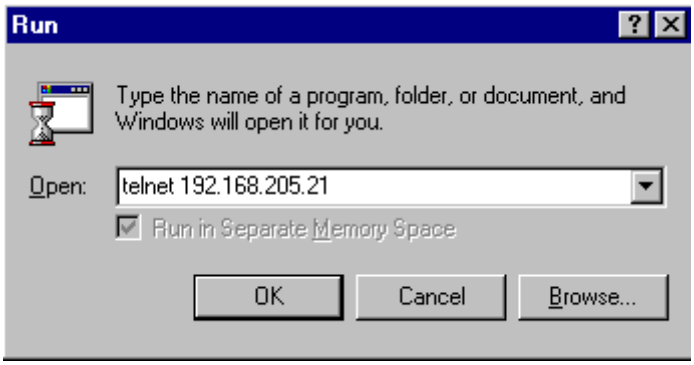
This chapter will introduce the APIs for the following functions:

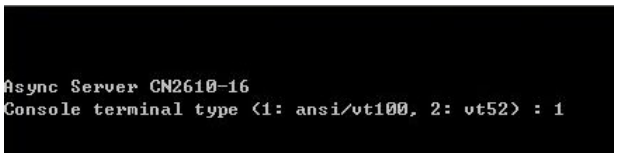
- **Configuring Port Operation Mode – Port Menu [Mode]**
  - TERM_ASC Mode
  - TERM_BIN Mode
- **Configuring Port Connection Setting – Port Menu [Line]**
- **Save**
- **Restart**

Configuring Port Operation Mode – Port Menu [Mode]

In **Port Menu [Mode]**, you can set up the terminal access application, and also set **TERM_ASC** and **TERM_BIN** modes.

1. Enter CN2610's **MAIN MENU**. Use either Telnet from a network terminal, or connect directly to Async Server with a console terminal. Choose **ansi/vt100** and then press **Enter**. Refer to Chapter 2 if you have trouble entering **MAIN MENU**.

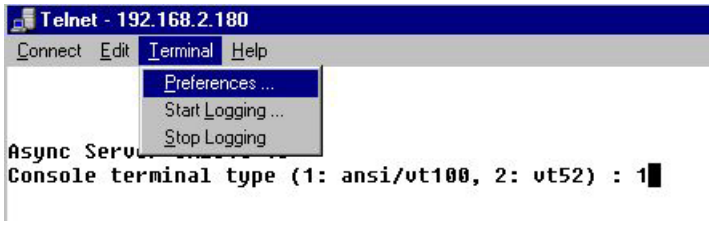


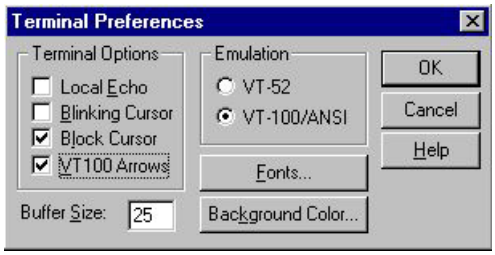


2. Below we show CN2610's **MAIN MENU**. Familiarize yourself with the cursor movement functions before we start.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

If you have problems using the arrow keys to move the cursor in Windows 9x or NT environment, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.

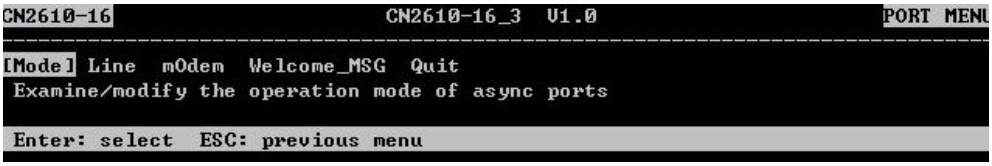




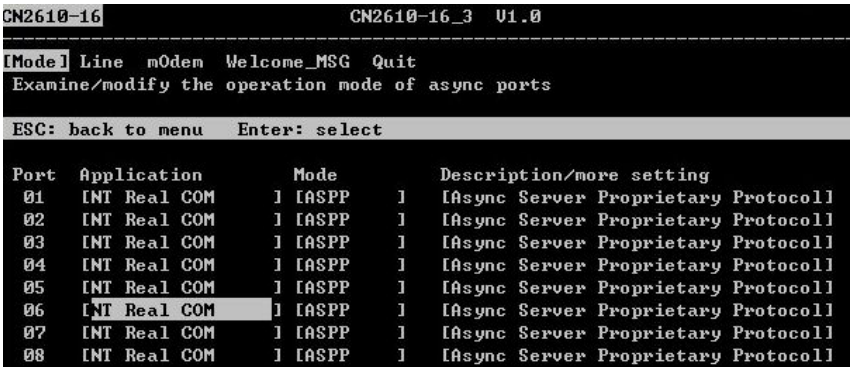
3. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

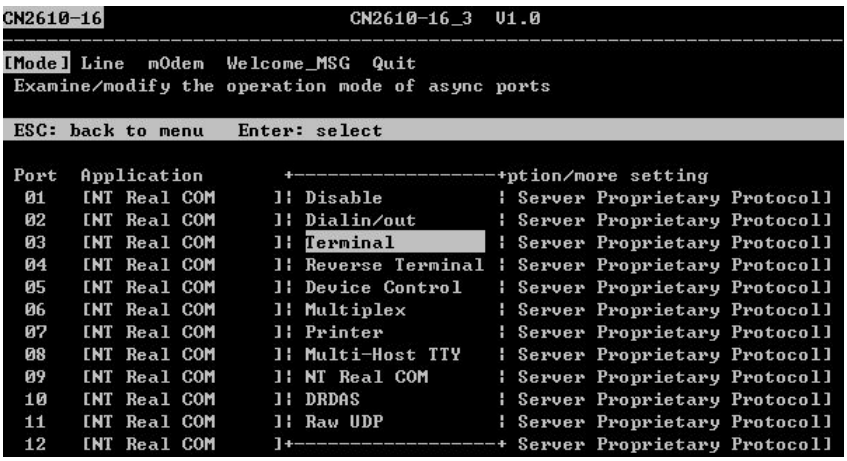
4. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
Enter: select ESC: previous menu

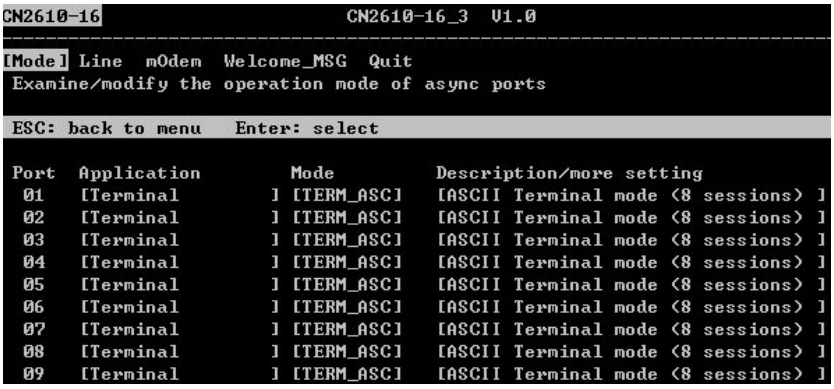
5. In **Mode**, use the arrow keys to move the cursor to the application corresponding to serial ports. Here we use Port 6 as an example.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
02 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
03 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
04 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
08 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

6. Press **Enter** to open application window. Use up/down arrow keys to select **Terminal**, and then press **Enter** to confirm.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application +ption/more setting
01 [NT Real COM]¦ Disable ¦ Server Proprietary Protocol]
02 [NT Real COM]¦ Dialin/out ¦ Server Proprietary Protocol]
03 [NT Real COM]¦ Terminal ¦ Server Proprietary Protocol]
04 [NT Real COM]¦ Reverse Terminal ¦ Server Proprietary Protocol]
05 [NT Real COM]¦ Device Control ¦ Server Proprietary Protocol]
06 [NT Real COM]¦ Multiplex ¦ Server Proprietary Protocol]
07 [NT Real COM]¦ Printer ¦ Server Proprietary Protocol]
08 [NT Real COM]¦ Multi-Host TTY ¦ Server Proprietary Protocol]
09 [NT Real COM]¦ NT Real COM ¦ Server Proprietary Protocol]
10 [NT Real COM]¦ DRDAS ¦ Server Proprietary Protocol]
11 [NT Real COM]¦ Raw UDP ¦ Server Proprietary Protocol]
12 [NT Real COM]+ +

7. Repeat Step 5 and 6 to configure port settings. For example, you can follow the steps described below to configure Port 1 to Port 8 for **Terminal** application.

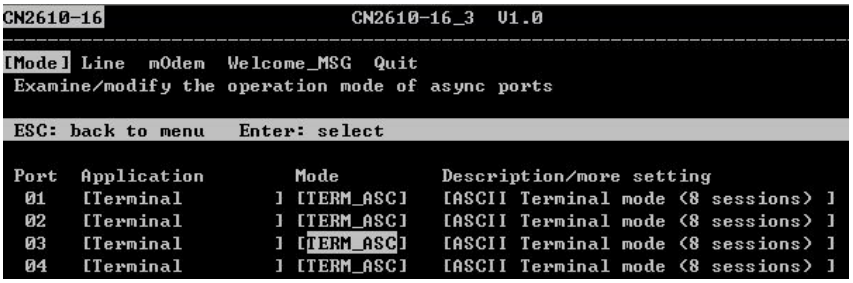

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
02 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
03 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
04 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
05 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
06 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
07 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
08 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
09 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]

TERM_ASC Mode

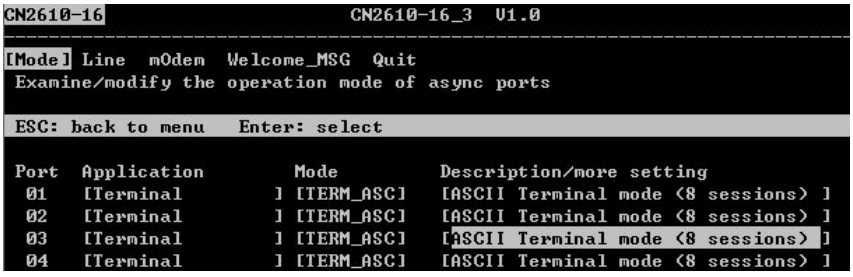
After selecting the application mode for each serial port, we will discuss more detailed information on terminal settings. **ASCII** and **Binary** are 2 protocols used in Terminal Access. **ASCII** supports 8 terminal sessions, while **Binary** only supports 1 session.

TERM_ASC supports 8 terminal sessions for each terminal. Hot keys are used to switch between different sessions.

1. Move the cursor to the **Mode** column of the corresponding port, and then press **Enter** to see two modes for **Terminal** applications.
2. Select **TERM_ASC**.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
02 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
03 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
04 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]

3. Move cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
02 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
03 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
04 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]

4. **TERM_ASC Description/More Setting** window.

Key Mapping :
Max. Sessions : [8]
Change Session : [^T]
Quit : [^E]
Break : [ ]
Interrupt : [ ]
Auto-link protocol : [none]
Telnet TCP port : [23]
Primary host IP : [ ]
Link by input IP : [Disable]
Secondary host IP : [ ]
Auto-login prompt : [ogin:]
Password prompt : [assword:]
Login user name : [ ]
Login password : [ ]
Terminal type : [ansi]
Inactivity time : [0] minutes
Authentication type : [none]
TCP alive check time: [0] minutes

Setting	Value	Notes	Necessity
Key Mapping			
Max. Sessions	1-8	Configure the max. number of sessions	Optional
Change Session	^T	Hot key for change session	Optional
Quit	^E	Hot key for quit session	Optional
Erase-line		Hot key for erase-line	Optional
Erase-character		Hot key for erase-character	Optional
Break		Hot key for sending telnet break signal	Optional
Interrupt		Hot key for program termination	Optional
Auto-link protocol	None/Telnet/ Rlogin	[None] Do not connect to host automatically. [Telnet] Connects to host automatically with Telnet [Rlogin] Connects to host automatically with Rlogin	Optional
Telnet TCP port	23	Enter a number or leave the space blank. If not specified, a default port 23 is used. If you want to use Telnet without a TCP port number, set this option to 23.	Optional
Primary host IP	IP address or the name defined in the [Host] table	If specified, designates a 'permanent' host to which the terminal will always be connected.	Optional
Link by input IP	Enable/Disable	For users to enter IP address manually for connection	Optional
Secondary host IP	IP address or the name defined in the [Host] table.	If specified, designates a secondary 'permanent' host to which the terminal will be connected.	Optional
Auto-login prompt	Login:	Send ID information when receiving this prompt.	Optional
Password prompt	Password:	Send Password information when receiving this prompt	Optional

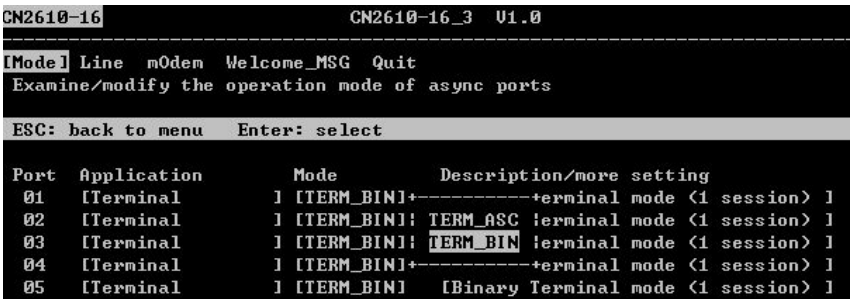
Login user name	ID	ID information	Optional
Login password	Password	Password information	Optional
Terminal type	Ansi	Terminal type for outgoing connection	Optional
Inactivity time	0-99 minutes	Idle time setting for auto-disconnection 0 min means no disconnection	Optional
Authentication type	None/local/server	None: No authentication is required. Local: Check ID according to User_table in SERVER MENU. You have to set user's information later in this chapter. Server: Check ID according to external RADIUS Server. Refer to Appendix B for RADIUS setup.	Optional
TCP alive check time	0-99 minutes	Specify the time slice for checking whether TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection	Optional

5. Repeat the steps above to set all TERM_ASC ports.
6. Press **Esc** to return to **PORT MENU**.

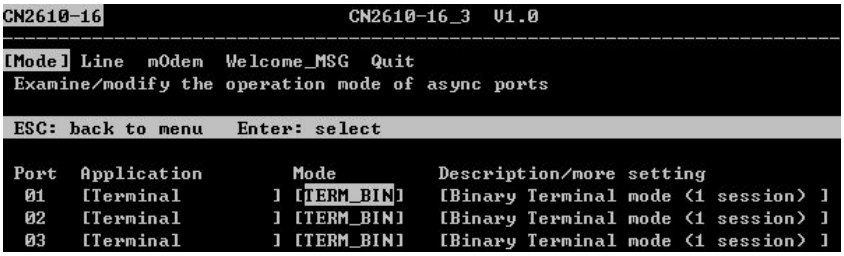
TERM_BIN Mode

Terminal Binary is used as an application protocol; for example, it can be used for file transfers with XMODEM or ZMODEM. You may only open one terminal session at a time when in Terminal Binary mode.

1. Move the cursor to the **Mode** column of the corresponding port, and then press **Enter** to see two modes for **Terminal** applications.
2. Select **TERM_BIN**.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Terminal] [TERM_BIN] [Binary Terminal mode (1 session)]
02 [Terminal] [TERM_BIN] [Binary Terminal mode (1 session)]
03 [Terminal] [TERM_BIN] [Binary Terminal mode (1 session)]
04 [Terminal] [TERM_BIN] [Binary Terminal mode (1 session)]
05 [Terminal] [TERM_BIN] [Binary Terminal mode (1 session)]
TERM_ASC
TERM_BIN

3. Move cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Terminal] [TERM_BIN] [Binary Terminal mode (1 session)]
02 [Terminal] [TERM_BIN] [Binary Terminal mode (1 session)]
03 [Terminal] [TERM_BIN] [Binary Terminal mode (1 session)]

4. **TERM_BIN Description/More Setting** window.

Quit key : [^E]
Auto-link protocol : [none]
Telnet TCP port : [23]
Primary host IP : [ ]
Link by input IP : [Disable]
Secondary host IP : [ ]
Auto-login prompt : [ogin:]
Password prompt : [assword:]
Login user name : [ ]
Login password : [ ]
Terminal type : [ansi]
Inactivity time : [0] minutes
Authentication type : [none]
TCP alive check time: [0] minutes

Setting	Value	Notes	Necessity
Quit Key	^E	Defines the Quit key used to disconnect the link between the current terminal session and the remote host. It may be left blank for binary communication.	Optional
Auto-link protocol	None/Telnet/ Rlogin	**[None]** Do not connect to host automatically. **[Telnet]** Connects to host automatically with Telnet **[Rlogin]** Connects to host automatically with Rlogin	Optional
Telnet TCP port	23	Enter a number or leave the space blank. If not specified, a default port 23 is used. If you want to use Telnet without a TCP port number, then set this option to 23.	Optional
Primary host IP	IP address or the name defined in the [Host] table	If specified, it designates a 'permanent' host to which the terminal will always be connected.	Optional
Link by input IP	Enable/Disable	For users to enter IP address manually for connection	Optional
Secondary host IP	IP address or the name defined in the [Host] table.	If specified, it designates a secondary 'permanent' host to which the terminal will be connected.	Optional
Auto-login prompt	ogin:	Send ID information when receiving this prompt. Since some prompts use "Login", others use "login", the prompt detection is defined as "ogin:".	Optional
Password prompt	assword:	Send Password information when receiving this prompt. Since some prompts use "Password", others use "password", the prompt detection is defined as "assword:".	Optional
Login user name	ID	ID information	Optional
Login password	Password	Password information	Optional
Terminal type	Ansi	Terminal type for outgoing connection	Optional
Inactivity time	0-99 minutes	Idle time setting for auto-disconnection 0 min means no disconnection	Optional
Authentication type	None/local/server	**None:** No authentication is required. **Local:** Check ID according to **"User_table"**	Optional

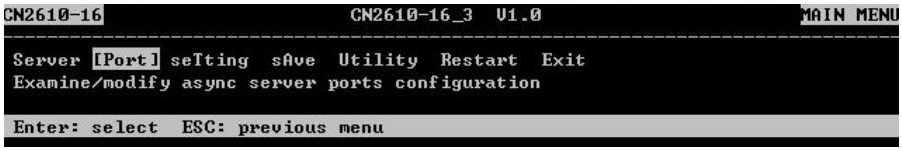
		in "**SERVER MENU**". You have to set user's information later in this chapter. **Server:** Check ID according to external RADIUS Server. Refer to Appendix B for RADIUS setup.	
TCP alive check time	0-99 minutes	Specify the time slice for checking whether TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection	Optional

5. Repeat the steps above to set all **TERM_BIN** ports.
6. Press **Esc** to return to **PORT MENU**.

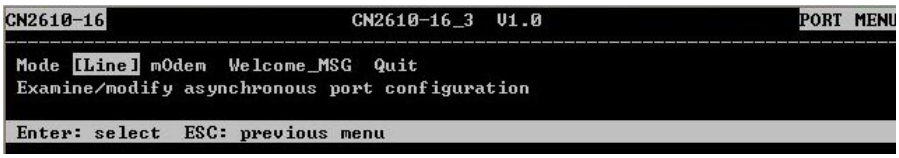
Configuring Port Setting – Port Menu [Line]

In **PORT MENU [Line]**, you can set line settings for the particular type of device being used.

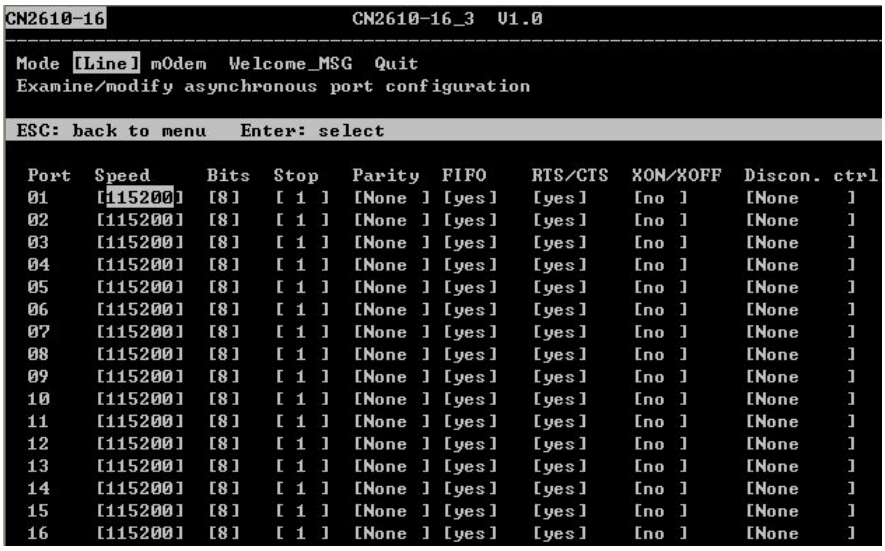
1. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

2. In **PORT MENU**, select **Line**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
Enter: select ESC: previous menu

3. Specify settings.

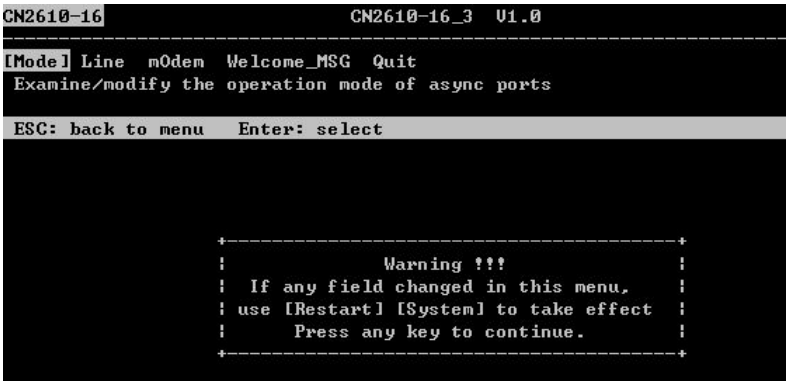

CN2610-16 CN2610-16_3 V1.0
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
ESC: back to menu Enter: select
Port Speed Bits Stop Parity FIFO RTS/CTS XON/XOFF Discon. ctrl
01 [115200] [8] [1] [None] [yes] [yes] [no] [None]
02 [115200] [8] [1] [None] [yes] [yes] [no] [None]
03 [115200] [8] [1] [None] [yes] [yes] [no] [None]
04 [115200] [8] [1] [None] [yes] [yes] [no] [None]
05 [115200] [8] [1] [None] [yes] [yes] [no] [None]
06 [115200] [8] [1] [None] [yes] [yes] [no] [None]
07 [115200] [8] [1] [None] [yes] [yes] [no] [None]
08 [115200] [8] [1] [None] [yes] [yes] [no] [None]
09 [115200] [8] [1] [None] [yes] [yes] [no] [None]
10 [115200] [8] [1] [None] [yes] [yes] [no] [None]
11 [115200] [8] [1] [None] [yes] [yes] [no] [None]
12 [115200] [8] [1] [None] [yes] [yes] [no] [None]
13 [115200] [8] [1] [None] [yes] [yes] [no] [None]
14 [115200] [8] [1] [None] [yes] [yes] [no] [None]
15 [115200] [8] [1] [None] [yes] [yes] [no] [None]
16 [115200] [8] [1] [None] [yes] [yes] [no] [None]

Setting	Value	Notes
Speed	50 – 230.4 Kbps	Transmission speed
Bits	5/6/7/8	Data bit
Stop	1/1.5/2	Stop bit
Parity	None/Even/Odd/Mark/Space	Parity check
FIFO	Yes/No	FIFO setting. Default is Yes
RTS/CTS	Yes/No	Hardware flow control
XON/XOFF	Yes/No	Software flow control
Discon. Ctrl	None/DSR off/DCD off	Recommend use [DSR off]

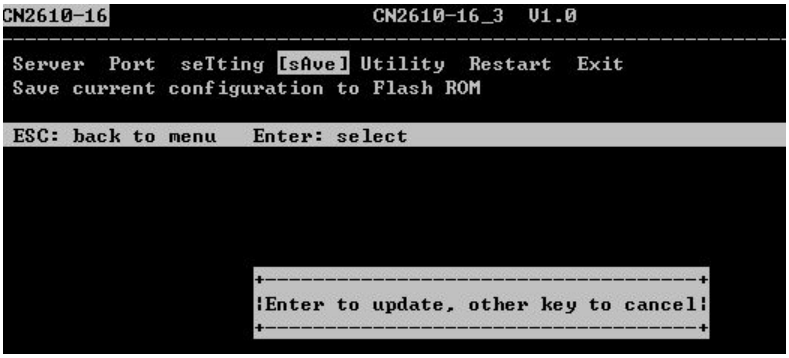
4. Repeat the above steps to set all lines.
5. Press **Esc** to return to **PORT MENU**.

Save

1. Press **Y** to save previous settings when exiting **PORT MENU**.

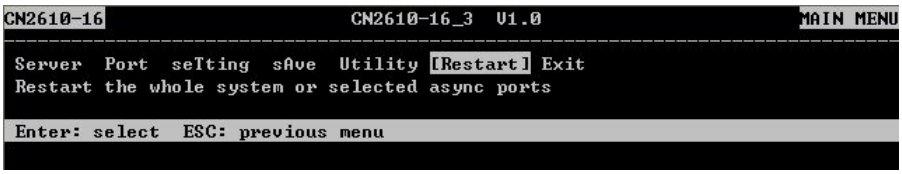

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Warning !!!
If any field changed in this menu,
use [Restart] [System] to take effect
Press any key to continue.

2. You may also save later. In **MAIN MENU**, select **sAve** to save all changed settings, and then press **Enter** to confirm.

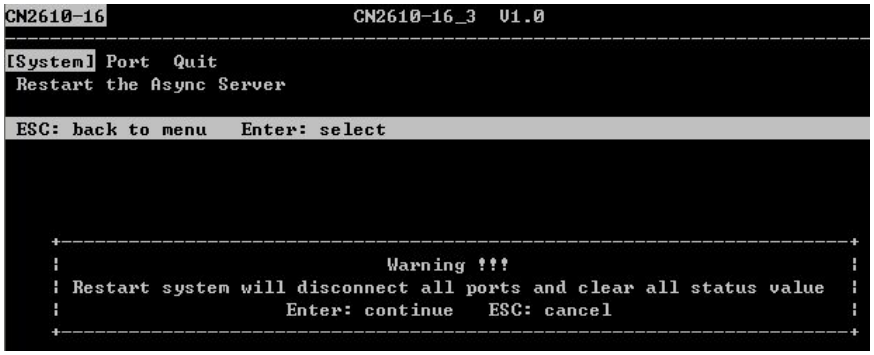

CN2610-16
CN2610-16_3 V1.0
Server Port seTting [sAve] Utility Restart Exit
Save current configuration to Flash ROM
ESC: back to menu Enter: select
Enter to update, other key to cancel

Restart

1. Return to **MAIN MENU** and select **Restart**.


CN2610-16
CN2610-16_3 V1.0
MAIN MENU
Server Port seTting sAve Utility [Restart] Exit
Restart the whole system or selected async ports
Enter: select ESC: previous menu

2. Select **System**, and then press **Enter** to continue.


CN2610-16
CN2610-16_3 V1.0
[System] Port Quit
Restart the Async Server
ESC: back to menu Enter: select
Warning !!!
Restart system will disconnect all ports and clear all status value
Enter: continue ESC: cancel

3. The system will restart and the Telnet/Console session will terminate. Enter **MAIN MENU** again to check whether the settings have been changed.

10

Setting up Multi-host TTY

When terminals need to communicate with multiple Unix hosts on the network via several simultaneous sessions, Multi-host TTY is the ideal method for transmission.

When the communication starts, the Unix server on the network has to activate Moxattyd first to TTY port's mapping function. Once it's done, Moxattyd will initiate the connection with the CN2610, and the CN2610 will listen to the connection requests by various Moxattyd at different TCP ports.

Once the connection is established, the Terminal server shown at the bottom right corner can switch session by using hot keys, in order to use one terminal to control different Unix hosts.

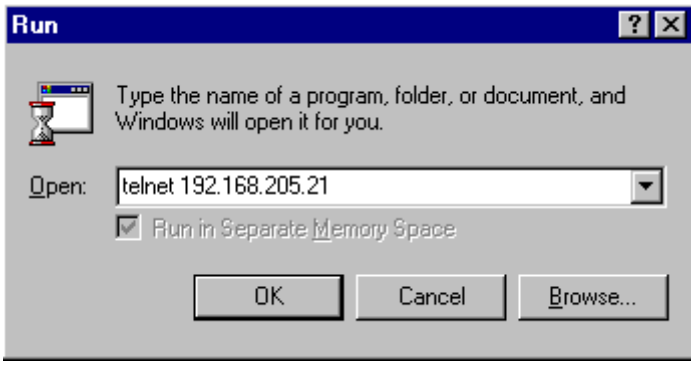
This chapter will introduce the APIs for the following functions:

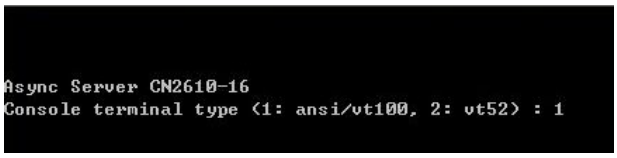
- **Configuring Port Operation Mode – Port Menu [Mode]**
  - Multi-host Mode
- **Configuring Port Connection Setting – Port Menu [Line]**
- **Setting up Hosts**
  - Installing and Compiling Moxatty
  - Moxatty for Different Applications
  - Using Moxatty

Configuring Port Operation Mode – Port Menu [Mode]

In **Port Menu [Mode]**, you can set up the Fix TTY mode in Unix environment, and Raw parameters.

1. Enter CN2610's **MAIN MENU**. Use either Telnet from a network terminal, or connect directly to Async Server with a console terminal. Choose **ansi/vt100** and then press **Enter**. Refer to Chapter 2 if you have trouble entering **MAIN MENU**.

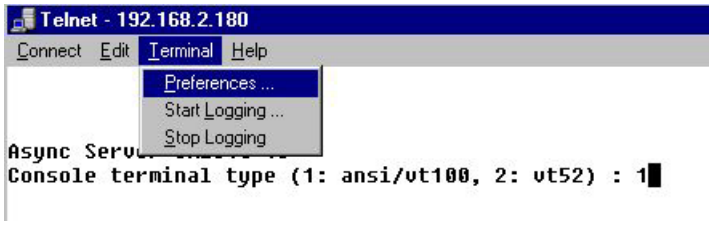


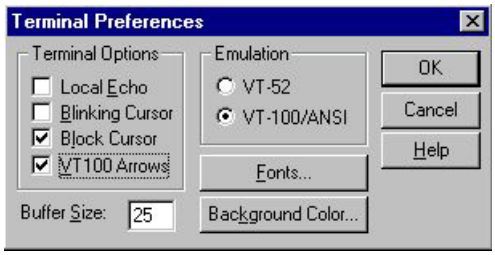


2. Below we show CN2610's **MAIN MENU**. Familiarize yourself with the cursor movement functions before we start.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

If you have problems using the arrow keys to move the cursor in Windows 9x or NT environment, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.

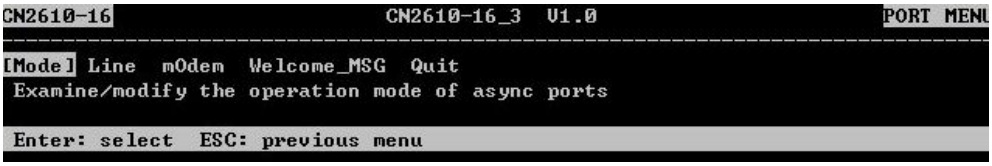




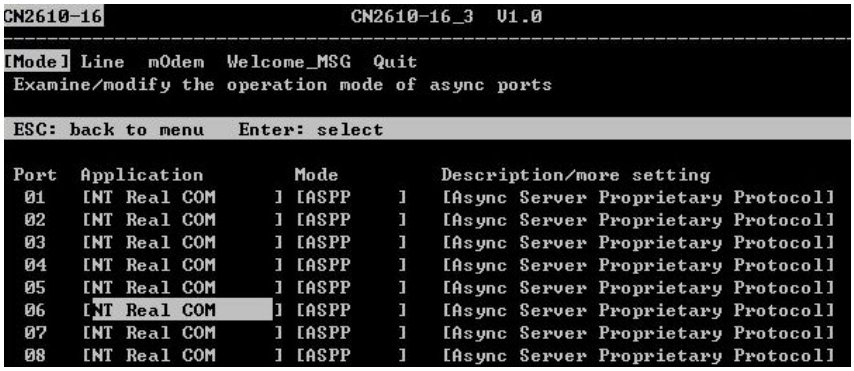
3. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

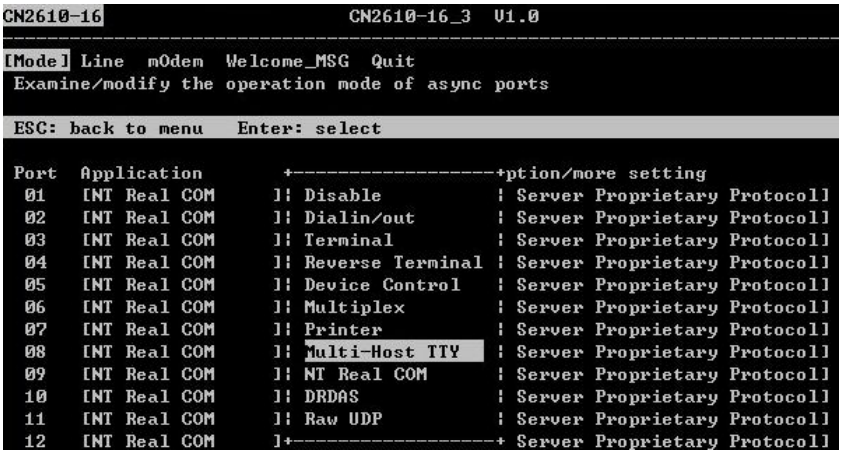
4. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
Enter: select ESC: previous menu

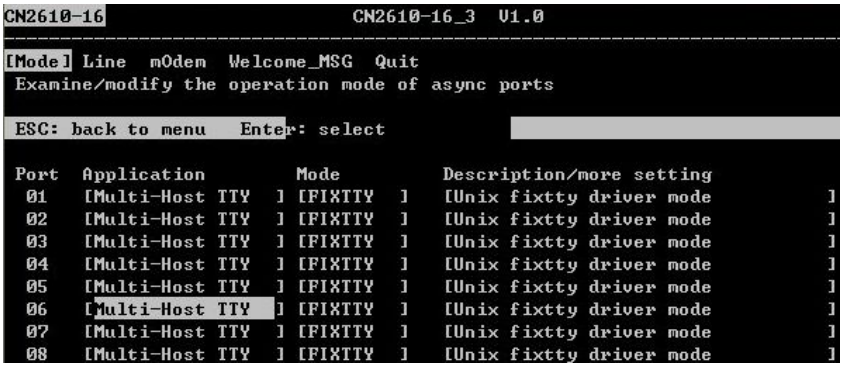
5. In **Mode**, use the arrow keys to move the cursor to the application corresponding to serial ports. Here we use Port 6 as an example.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
02 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
03 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
04 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
08 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

6. Press **Enter** to open application window. Use up/down arrow keys to select **Multi-Host TTY**, and then press **Enter** to confirm.

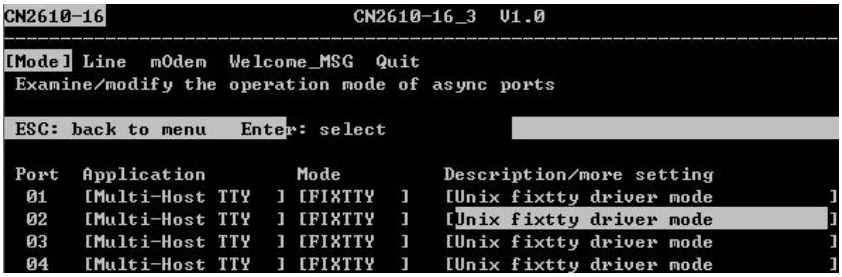

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application +------------------+ption/more setting
01 [NT Real COM]| Disable | Server Proprietary Protocol]
02 [NT Real COM]| Dialin/out | Server Proprietary Protocol]
03 [NT Real COM]| Terminal | Server Proprietary Protocol]
04 [NT Real COM]| Reverse Terminal | Server Proprietary Protocol]
05 [NT Real COM]| Device Control | Server Proprietary Protocol]
06 [NT Real COM]| Multiplex | Server Proprietary Protocol]
07 [NT Real COM]| Printer | Server Proprietary Protocol]
08 [NT Real COM]| Multi-Host TTY | Server Proprietary Protocol]
09 [NT Real COM]| NT Real COM | Server Proprietary Protocol]
10 [NT Real COM]| DRDAS | Server Proprietary Protocol]
11 [NT Real COM]| Raw UDP | Server Proprietary Protocol]
12 [NT Real COM]+------------------+ Server Proprietary Protocol]

7. Repeat Step 6 to configure port settings. For example, you can follow the steps described below to configure Port 1 to Port 8 for **Multi-Host TTY** application.

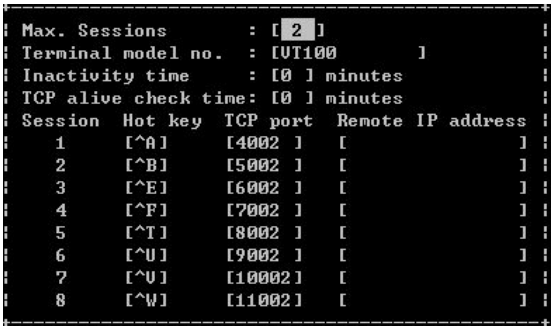

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]
02 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]
03 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]
04 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]
05 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]
06 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]
07 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]
08 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]

Fix TTY Mode

1. Move cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]
02 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]
03 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]
04 [Multi-Host TTY] [FIXTTY] [Unix fixtty driver mode]

2. **Fix TTY Description/More Setting** window.


Max. Sessions : [2]
Terminal model no. : [VT100]
Inactivity time : [0] minutes
TCP alive check time: [0] minutes
Session Hot key TCP port Remote IP address
1 [^A] [4002] [ ]
2 [^B] [5002] [ ]
3 [^E] [6002] [ ]
4 [^F] [7002] [ ]
5 [^T] [8002] [ ]
6 [^U] [9002] [ ]
7 [^V] [10002] [ ]
8 [^W] [11002] [ ]

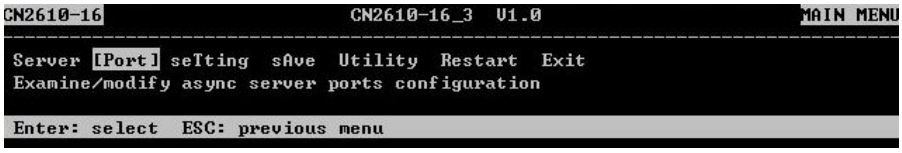
Setting	Value	Notes	Necessity
Max. Sessions	1-8	Configure how many connections for each CN2610's port.	Optional
Terminal mode no.	Star NT-560+ NL-5000A VT100	CN2610 provides 3 modes depending on the connection mode supported by the terminal.	Optional
Inactivity time	0-99 minutes	Idle time setting for auto-disconnection. 0 min means no disconnection.	Optional
TCP alive check time	0-99 minutes	Specify the time slice for checking whether the TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection.	Optional
Session		Configure the hot key for each connection, the connection's socket port, and the connected IP address.	

3. Repeat the steps above to set all Fix TTY ports.
4. Press **Esc** to return to **PORT MENU**.

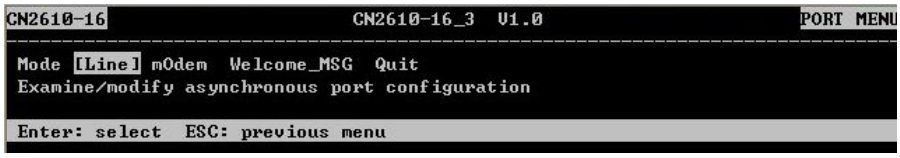
Configuring Port Setting – Port Menu [Line]

In **PORT MENU [Line]**, you can set line settings for the particular type of device being used.

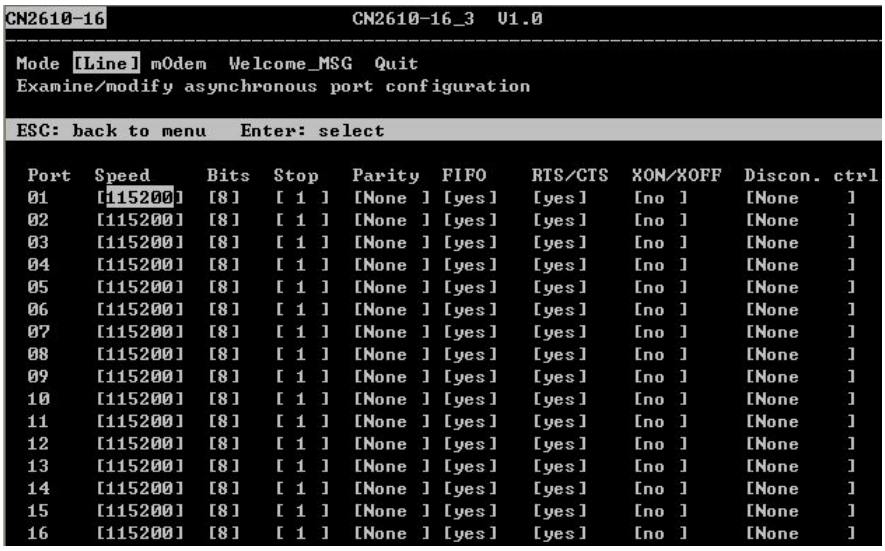
1. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.



2. In **PORT MENU**, select **Line**, and then press **Enter**.



3. Specify settings.


CN2610-16
CN2610-16_3 V1.0
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
ESC: back to menu Enter: select
Port Speed Bits Stop Parity FIFO RTS/CTS XON/XOFF Discon. ctrl
01 [115200] [8] [1] [None] [yes] [yes] [no] [None]
02 [115200] [8] [1] [None] [yes] [yes] [no] [None]
03 [115200] [8] [1] [None] [yes] [yes] [no] [None]
04 [115200] [8] [1] [None] [yes] [yes] [no] [None]
05 [115200] [8] [1] [None] [yes] [yes] [no] [None]
06 [115200] [8] [1] [None] [yes] [yes] [no] [None]
07 [115200] [8] [1] [None] [yes] [yes] [no] [None]
08 [115200] [8] [1] [None] [yes] [yes] [no] [None]
09 [115200] [8] [1] [None] [yes] [yes] [no] [None]
10 [115200] [8] [1] [None] [yes] [yes] [no] [None]
11 [115200] [8] [1] [None] [yes] [yes] [no] [None]
12 [115200] [8] [1] [None] [yes] [yes] [no] [None]
13 [115200] [8] [1] [None] [yes] [yes] [no] [None]
14 [115200] [8] [1] [None] [yes] [yes] [no] [None]
15 [115200] [8] [1] [None] [yes] [yes] [no] [None]
16 [115200] [8] [1] [None] [yes] [yes] [no] [None]

Setting	Value	Notes
Speed	50 – 230.4 Kbps	Transmission speed
Bits	5/6/7/8	Data bit
Stop	1/1.5/2	Stop bit
Parity	None/Even/Odd/Mark/Space	Parity check
FIFO	Yes/No	FIFO setting. Default is Yes
RTS/CTS	Yes/No	Hardware flow control
XON/XOFF	Yes/No	Software flow control
Discon. Ctrl	None/DSR off/DCD off	Inactive for these modes

4. Repeat the above steps to set all lines.
5. Press **Esc** to return to **PORT MENU**.

Setting up Hosts

Installing and Compiling Moxatty

Installing and Compiling

1. Create a directory for Moxatty (e.g. /user/etc/moxatty) as shown below:

```
#mkdir /usr/etc/moxatty
#cd /usr/etc/moxatty
```

2. Extract code from the tar-formatted file `moxatty.tar` as follows:

```
#tar xvf moxatty.tar
```

3. After the extraction is complete, locate the following files:

`moxattyd.c`	program source code
`moxattyd.cf`	configuration file
`README`	description file for moxatty

4. Compile and link documents:

   SCO UNIX **:** cc -O -o moxattyd moxattyd.c –lsocket
   LINUX **:** cc -O -o moxattyd moxattyd.c
   AIX **:** cc -O -o -DAIX moxattyd moxattyd.c

Configuring tty Redirection

The following example illustrates how to map and redirect a tty device to a MOXA CN2610 serial port. Use **vi** or any editor to add or modify entries in the file `moxattyd.cf`. There are three columns: **Device Name**, **CN2610 IP address** and **TCP port number** in the entry for the file `moxattyd.cf`.

Device Name	CN2610 IP address	TCP Port number
ttyp1	192.168.1.1	4001
ttyp2	192.168.1.1	4002
ttyp3	192.168.1.1	4003
ttyp4	192.168.1.1	4004

NOTE

1. Device Names for SCO Unix are ttyp0, ttyp1, ttyp2.
2. Device Names for Linux are tty[pqrs][0-9,a-f].
3. Device Names for AIX are tty p[0-9,a-f].
4. Default TCP port numbers are from 4001 to 4016 for the 16 port CN2610. If necessary, you can customize the TCP port numbers according to your needs. However, they MUST be the same as those defined on MOXA CN2610.

Adding Moxatty to system booting procedures

To include MOXATTY in the booting system, add the `moxattyd` daemon process to the `/etc/inittab` file. The following example illustrates how to add the full path name for `moxattyd` to the entries of `/etc/inittab` for different UNIX hosts.

For SCO UNIX
```
ts:2:respawn:/usr/etc/moxatty/moxattyd –t 1
```
For LINUX
```
ts:3:respawn:/usr/etc/moxatty/moxattyd –t 1
```
For AIX
```
ts:2:respawn: usr/etc/moxatty/moxattyd –t 1
```

NOTE The option "–t 1" means the reconnection time is 1 minute after turning CN2610 on or off.

Moxatty for Different Applications

This section illustrates how to use MOXATTY with a number of different applications.

Terminal Access

To use terminal access the process getty must be activated while the system boots up. To do this, add the following entries to the file /etc/inittab.

For SCO UNIX
```
ts1:234:respawn:/etc/getty ttyp1
ts2:234:respawn:/etc/getty ttyp2
ts3:234:respawn:/etc/getty ttyp3
```

```
ts4:234:respawn:/etc/getty ttyp4
```
For LINUX
```
p1:345:respawn:/sbin/mingetty ttyp1
p2:345:respawn: /sbin/mingetty ttyp2
p3:345:respawn: /sbin/mingetty ttyp3
p4:345:respawn: /sbin/mingetty ttyp4
```
For AIX
```
ts1:2:respawn:/usr/sbin/getty ttyp1
ts2:2:respawn:/usr/sbin/getty ttyp2
ts3:2:respawn:/usr/sbin/getty ttyp3
ts4:2:respawn:/usr/sbin/getty ttyp4
```

NOTE ttyp1~ttyp4 device names are mapped to port 1~ port 4 on MOXA CN2610.

Transparent Printer Access

It's not necessary to add additional entries to /etc/inittab for printer access, as mentioned in terminal access. Since MOXATTY is a fixed pseudo tty, you can easily connect a serial printer to a Moxa CN2610 serial port to execute printing commands.

The following example is for SCO UNIX:

Command	Description
/usr/lib/lpadmin –pLaser1 -v/dev/ttyp1	set printer name as Laser1 and use ttyp1
/usr/lib/accept Laser1	accept printer Laser1
enable Laser1	enable printer Laser1
lp -dLaser1 file_name	print file to Laser1

Other Applications

As mentioned earlier, system setup depends on which application you are using. Since MOXATTY is a fixed pseudo tty, no additional setup is required to enable your applications to open tty devices.

Using Moxatty

Starting MOXATTY

Once you have completed the above settings, you can start. Follow the steps given below to ensure that MOXATTY is running correctly.

See if the entries added to moxattyd.cf are correct.

Run init q or reboot your system to start the MOXATTY daemon. If you see that moxattyd is running on your system, then MOXATTY has been successfully started.

Stopping MOXATTY

If for any reason you need to stop the MOXATTY daemon, the two methods listed below allow you to stop the moxattyd daemon process:

1. Remove entries related to `moxattyd` daemon in `/etc/inittab` and execute `init q` or reboot your system, or
2. Replace `respawn` with `off` in entries related to `moxattyd` daemon in `/etc/inittab`, and execute `init q` or reboot your system.

For instance, 'ts:2:off:/usr/etc/moxatty/moxattyd' for SCO UNIX,
'ts:3:off:/usr/etc/moxatty/moxattyd' for LINUX, or 'ts:2:off:/usr/etc/moxatty/moxattyd' for AIX.

11

Setting up Dial-in/out of Band Management

We describe here the steps required to configure Moxa CN2610 as a Dial-up/out Access Server. Dial-up Access allows remote users to access the LAN, whereas Dial-out Access allows LAN hosts to establish connections to other sites.

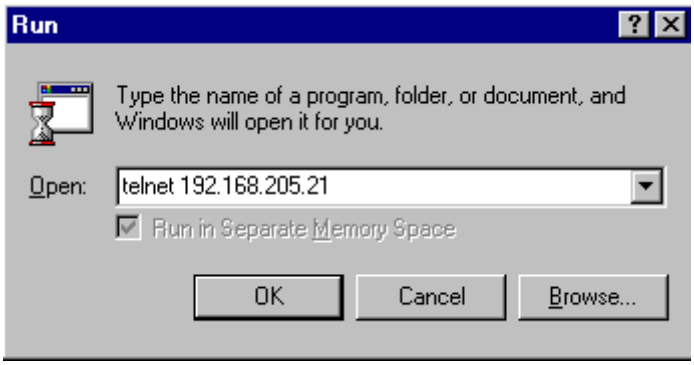
The following topics are covered in this chapter:

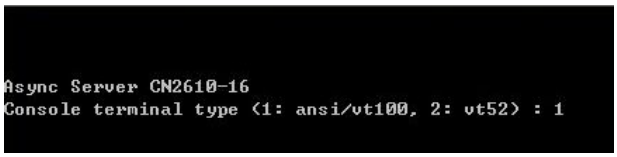
- **Configuring Port Operation Mode – Port Menu [Mode]**
  - PPPD/PPP Mode
  - SLIPD/SLIP Mode
  - Dynamic Mode
- **Configuring Port Connection Setting – Port Menu [Line]**
- **Configuring Modem Initialization – Port Menu [Modem]**
- **Optional Welcome Message – Port Menu [Welcome_MSG]**
- **Optional local user information – SERVER MENU [User_table]**
- **Save**
- **Restart**

Configuring Port Operation Mode – Port Menu [Mode]

In **Port Menu [Mode]**, you can set up the Dial-up/out mode access server and parameters.

1. Enter CN2610's **MAIN MENU**. Use either Telnet from a network terminal, or connect directly to Async Server with a console terminal. Choose **ansi/vt100** and then press **Enter**. Refer to Chapter 2 if you have trouble entering **MAIN MENU**.

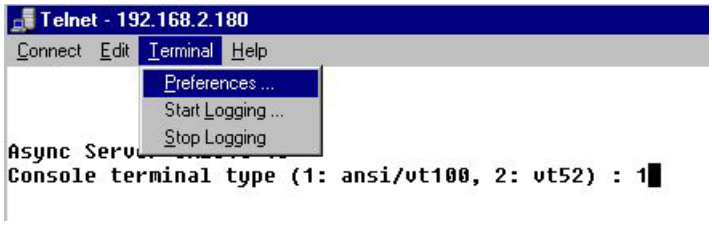


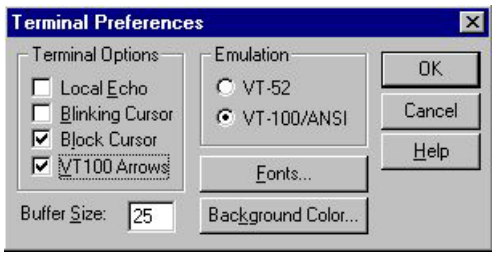


2. Below we show CN2610's **MAIN MENU**. Familiarize yourself with the cursor movement functions before we start.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

If you have problems using the arrow keys to move the cursor in Windows 9x or NT environment, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.

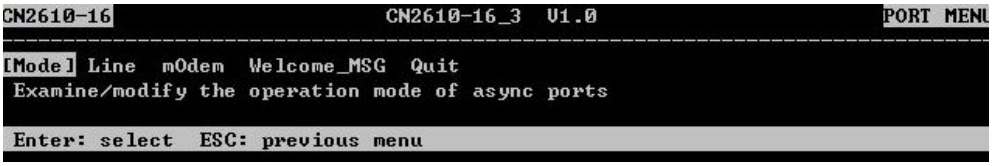




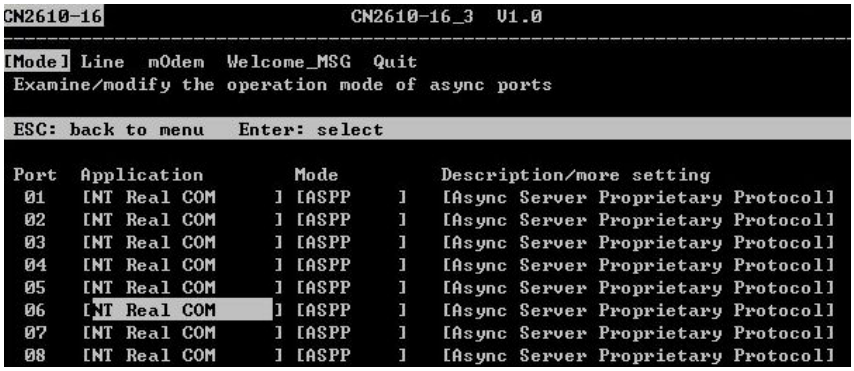
3. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

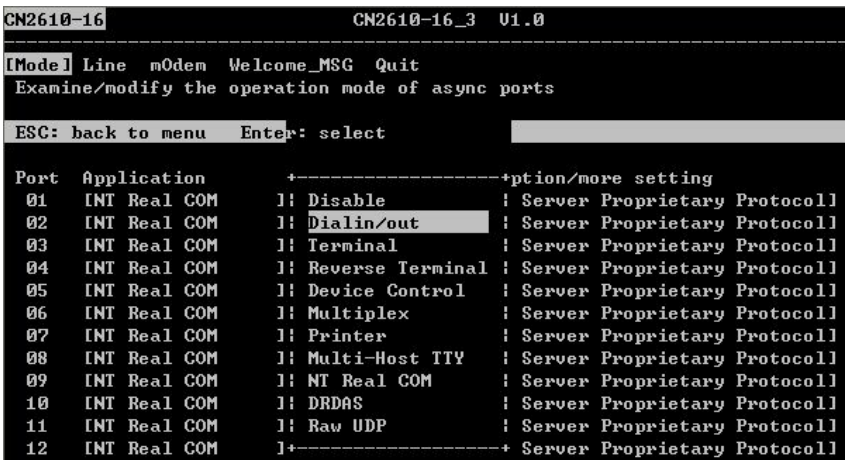
4. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
Enter: select ESC: previous menu

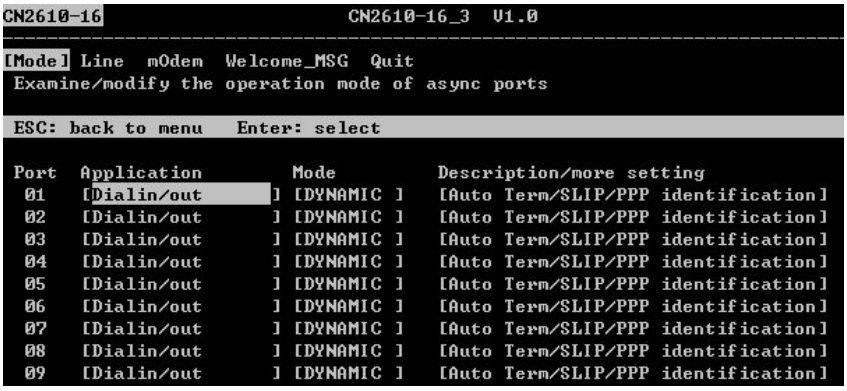
5. In **Mode**, use the arrow keys to move the cursor to the application corresponding to serial ports. Here we use Port 6 as an example.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
02 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
03 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
04 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
08 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

6. Press **Enter** to open application window. Use up/down arrow keys to select **Dial-in/out**, and then press **Enter** to confirm.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application +------------------+ption/more setting
01 [NT Real COM]| Disable | Server Proprietary Protocol]
02 [NT Real COM]| Dialin/out | Server Proprietary Protocol]
03 [NT Real COM]| Terminal | Server Proprietary Protocol]
04 [NT Real COM]| Reverse Terminal | Server Proprietary Protocol]
05 [NT Real COM]| Device Control | Server Proprietary Protocol]
06 [NT Real COM]| Multiplex | Server Proprietary Protocol]
07 [NT Real COM]| Printer | Server Proprietary Protocol]
08 [NT Real COM]| Multi-Host TTY | Server Proprietary Protocol]
09 [NT Real COM]| NT Real COM | Server Proprietary Protocol]
10 [NT Real COM]| DRDAS | Server Proprietary Protocol]
11 [NT Real COM]| Raw UDP | Server Proprietary Protocol]
12 [NT Real COM]+------------------+ Server Proprietary Protocol]

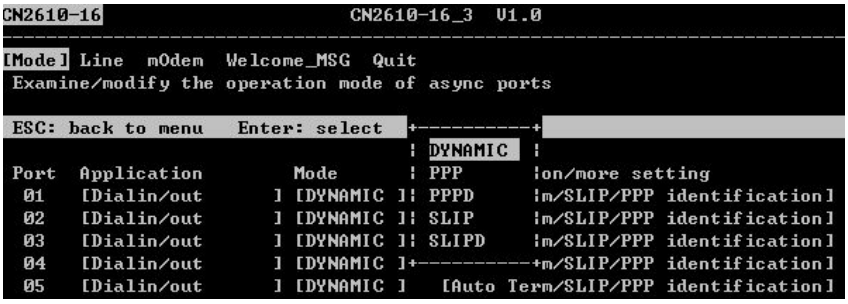
7. Repeat Step 6 to configure port settings. For example, you can follow the steps described below to configure Port 1 to Port 16 for **Dial-in/out** application.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
02 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
03 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
04 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
05 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
06 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
07 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
08 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
09 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]

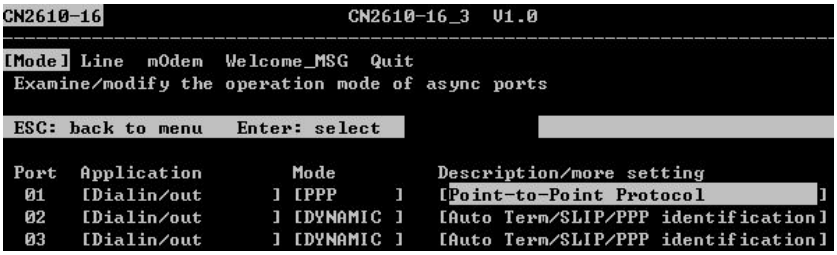
PPPD/PPP Mode

PPPD (PPP on demand) is used for Dial in services since it provides PPP services only when receiving a request from a remote PC. PPP provides standard PPP services for both Dial-in and dial-out.

1. Move the cursor to the **Mode** column of the corresponding port, and then press **Enter** to see five mode options for Dial-in/out applications.



2. Select **PPPD** for Dial in services only, or **PPP** for both Dial-in/out services.
3. Move the cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Dialin/out] [PPP] [Point-to-Point Protocol]
02 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
03 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]

Destination IP addr : [ ]
Source IP address : [ ]
IP netmask : [ ]
TCP/IP compression : [no]
Inactivity time : [0] minutes
Link quality report : [no]
Outgoing PAP ID : [ ]
PAP password : [ ]
Incoming PAP check : [none]

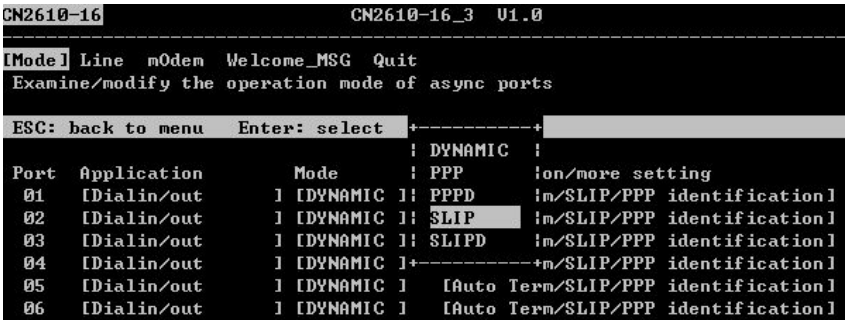
Setting	Value	Notes	Necessity
Destination IP addr	IP address for the remote Dial-in / Dial-out user	DO assign an IP address for the remote user.	Yes
Source IP address	IP address for the port	CN2610 automatically assigns an IP address for the port. Recommend: Blank	Optional
IP netmask	IP netmask	CN2610 automatically assigns "255.255.255.255" IP netmask for the port. Recommend: Blank	Optional
TCP/IP Compression	Yes/No	Depends on remote user's application request for compression.	Optional
Inactivity time	0-99 minutes	Idle time setting for disconnection 0 min means no disconnection	Optional
Link quality report	Yes/No	If you have software to collect the Link quality information, choose YES.	Optional
Outgoing PAP ID	ID	Dial out user/account ID information	Optional
PAP password	Password	Dial out user/account password	Optional
Incoming PAP check	None/local/server	**None**: No authentication is required **Local**: Check ID according to **User_table** in **SERVER MENU**. You will need to set user's information later in this chapter. **Server**: Check ID according to external RADIUS Server. Refer to Appendix B for RADIUS setup.	Optional

4. Repeat the above steps to set all **PPP/PPPD** ports.
5. Press **Esc** to go back to **PORT MENU**.

SLIPD/SLIP Mode

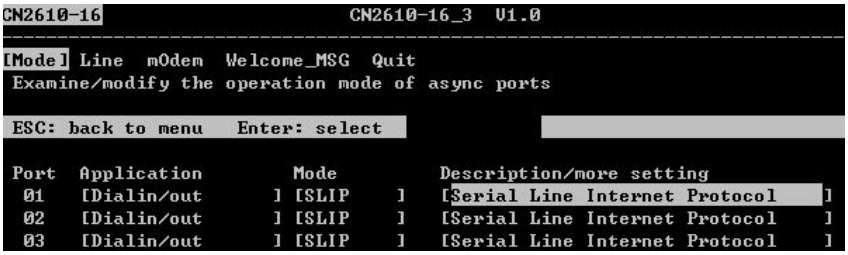
Moxa CN2610 supports SLIP (Serial Line Internet Protocol), and SLIPD (for Dial in services only).

1. Move the cursor to the **Mode** column of the corresponding port, and then press **Enter** to see five mode options for Dial-in/out applications.



2. Select **SLIPD** for Dial in services only, or **SLIP** for both Dial-in/out services.

3. Move the cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.


CN2610-16
CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Dialin/out] [SLIP] [Serial Line Internet Protocol]
02 [Dialin/out] [SLIP] [Serial Line Internet Protocol]
03 [Dialin/out] [SLIP] [Serial Line Internet Protocol]

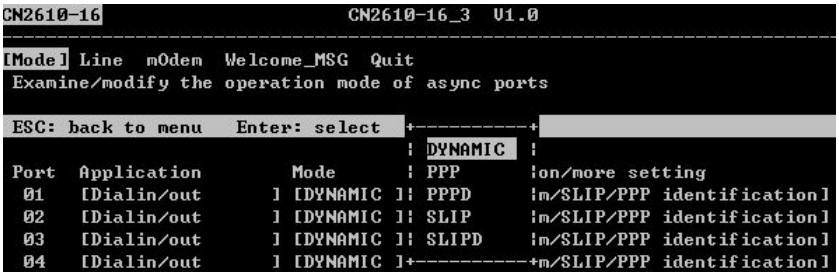
Setting	Value	Notes	Necessity
Destination IP addr	IP address for the remote Dial-in / Dial-out user	DO assign an IP address for the remote user.	Yes
Source IP address	IP address for the port	CN2610 automatically assigns an IP address for the port. Recommend: Blank	Optional
IP netmask	IP netmask	CN2610 automatically assigns "255.255.255.255" IP netmask for the port. Recommend: Blank	Optional
TCP/IP Compression	Yes/No	Depends on remote user's application request for compression.	Optional
Inactivity time	0-99 minutes	Idle time setting for disconnection 0 min means no disconnection	Optional

4. Repeat the above steps to set all **SLIPD/SLIP** ports.
5. Press **Esc** to go back to **PORT MENU**.

Dynamic Mode

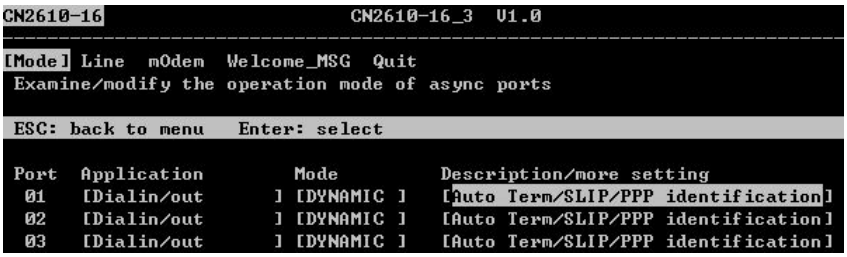
Dynamic mode integrates PPPD/SLIPD/Terminal Dial in services. Dynamic mode automatically detects which remote connection mode is being used, and provides corresponding services. You can further enable/disable PPP/SLIP/Terminal services by using **Description/more setting**.

1. Move the cursor to the **Mode** column of the corresponding port, and then press **Enter** to see five mode options for Dial-in/out applications.

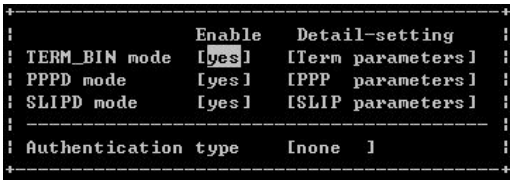

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
DYNAMIC
Port Application Mode PPP on/more setting
01 [Dialin/out] [DYNAMIC] PPPD m/SLIP/PPP identification]
02 [Dialin/out] [DYNAMIC] SLIP m/SLIP/PPP identification]
03 [Dialin/out] [DYNAMIC] SLIPD m/SLIP/PPP identification]
04 [Dialin/out] [DYNAMIC] m/SLIP/PPP identification]

2. Select **Dynamic** for Dial-in/out services.

3. Move the cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.

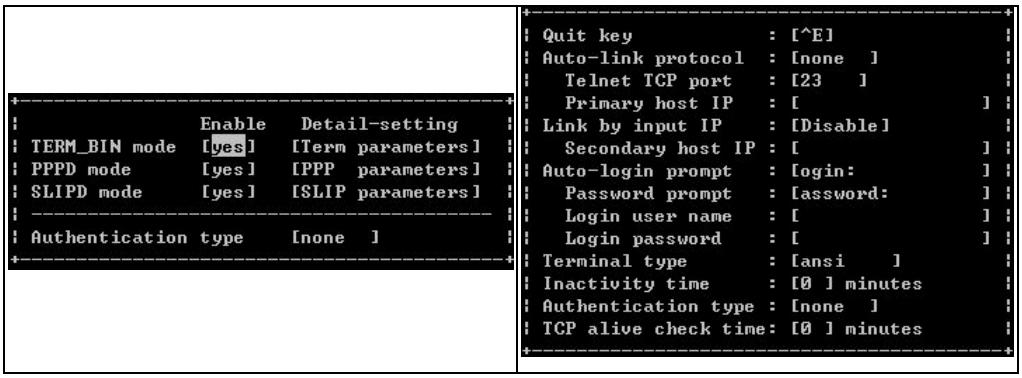

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
02 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
03 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]

4. Dynamic **Description/more Setting** window. Select **yes** to enable **TERM_BIN**, **PPPD**, and **SLIPD** modes.


Enable Detail-setting
TERM_BIN mode [yes] [Term parameters]
PPPD mode [yes] [PPP parameters]
SLIPD mode [yes] [SLIP parameters]
Authentication type [none]

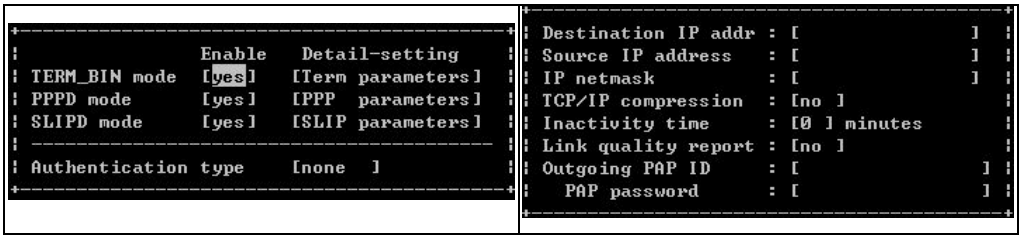
Setting	Value	Notes	Necessity
TERM_BIN mode	YES/NO	To enable Binary Terminal connection	Optional
PPPD mode	YES/NO	To enable PPPD connection	Optional
SLIPD mode	YES/NO	To enable SLIPD Terminal connection	Optional
Authentication type	None/local/ server	**None**: No authentication is required **Local**: Check ID according to **User_table** in **SERVER MENU**. You will need to set user's information later in this chapter. **Server**: Check ID according to external RADIUS Server	Optional

5. Term parameters. Open the **Detail-setting** window to set more parameters (if necessary).


Enable Detail-setting
TERM_BIN mode [yes] [Term parameters]
PPPD mode [yes] [PPP parameters]
SLIPD mode [yes] [SLIP parameters]
Authentication type [none]
Quit key : [^E]
Auto-link protocol : [none]
Telnet TCP port : [23]
Primary host IP : [ ]
Link by input IP : [Disable]
Secondary host IP : [ ]
Auto-login prompt : [ogin:]
Password prompt : [assword:]
Login user name : [ ]
Login password : [ ]
Terminal type : [ansi]
Inactivity time : [0] minutes
Authentication type : [none]
TCP alive check time: [0] minutes

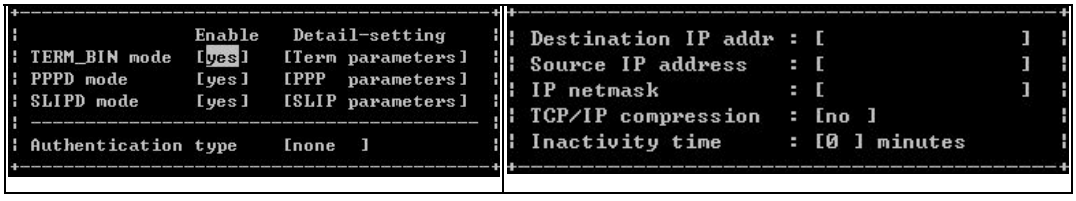
Setting	Value	Notes	Necessity
Quit key	^E	Defines the Quit key used to disconnect the link between the current terminal session and the remote host.	Optional
Auto-link protocol	None/Telnet/ Rlogin	**[None]** Do not connect to host automatically. **[Telnet]** Connects to host automatically with Telnet **[Rlogin]** Connects to host automatically with Rlogin	Optional
Telnet TCP port	23	Enter a number or leave the space blank. If not specified, a default port 23 is used. For example, if you want to use Telnet without a TCP port number, use 23.	Optional
Primary host IP	IP address or the name defined in the [Host] table	If specified, it designates a 'permanent' host to which the terminal will always be connected.	Optional
Secondary host IP	IP address or the name defined in the [Host] table.	If specified, it designates a secondary 'permanent' host to which the terminal will be connected.	Optional
Auto-login prompt	ogin:	Send ID information when receiving this prompt. Since some prompts use "Login" and others use "login", the prompt detection is defined as "ogin:".	Optional
Password prompt	assword:	Send Password information when receiving this prompt. Since some prompts use "Password" and others use "password", the prompt detection is defined as "assword:".	Optional
Login user name	ID	ID information	Optional
Login password	Password	Password information	Optional
Terminal type	ansi	Terminal type for outgoing connection	Optional
Inactivity time	0-99 minutes	Idle time setting for disconnection 0 min means no disconnection	Optional
TCP alive check time	0-99 minutes	Specify the time slice for checking whether the TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection	Optional

6. PPP parameters. Open the **Detail-setting** window to set more parameters (if necessary). Destination IP is required.


Enable Detail-setting
TERM_BIN mode [yes] [Term parameters]
PPPD mode [yes] [PPP parameters]
SLIPD mode [yes] [SLIP parameters]
Authentication type [none]
Destination IP addr : [ ]
Source IP address : [ ]
IP netmask : [ ]
TCP/IP compression : [no]
Inactivity time : [0] minutes
Link quality report : [no]
Outgoing PAP ID : [ ]
PAP password : [ ]

Setting	Value	Notes	Necessity
Destination IP addr	IP address for the remote Dial-in user	DO assign an IP address for the remote user.	Yes
Source IP address	IP address for the port	CN2610 automatically assigns IP address for the port. Recommend: Blank	Optional
IP netmask	IP netmask	CN2610 automatically assigns "255.255.255.255" IP netmask for the port. Recommend: Blank	Optional
TCP/IP Compression	Yes/No	Depends on remote user's application request for compression.	Optional
Inactivity time	0-99 minutes	Idle time setting for disconnection. 0 min means no disconnection	Optional
Link quality report	Yes/N0	If you have software to collect the link quality information, choose YES.	Optional
Outgoing PAP ID	ID	Dial out user/account ID information	Optional
PAP password	Password	Dial out user/account password	Optional

7. SLIP parameters. Open the **Detail-setting** window to set parameters (if necessary). Destination IP is required.


Enable Detail-setting
TERM_BIN mode [yes] [Term parameters]
PPPD mode [yes] [PPP parameters]
SLIPD mode [yes] [SLIP parameters]
Authentication type [none]
Destination IP addr : [ ]
Source IP address : [ ]
IP netmask : [ ]
TCP/IP compression : [no]
Inactivity time : [0] minutes

Setting	Value	Notes	Necessity
Destination IP addr	IP address for the remote Dial-in user	DO assign an IP address for the remote user.	Yes
Source IP address	IP address for the port	CN2610 automatically assigns IP address for the port. Recommend: Blank	Optional
IP netmask	IP netmask	CN2610 automatically assigns "255.255.255.255" IP netmask for the port.	Optional

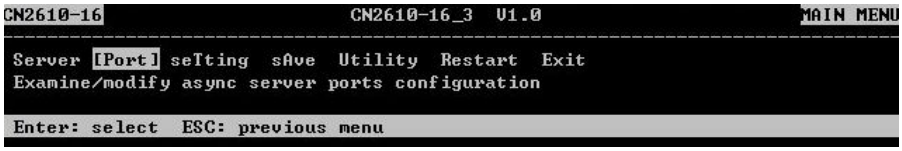
		Recommend: Blank	
TCP/IP Compression	Yes/No	Depends on remote user's application request for compression.	Optional
Inactivity time	0-99 minutes	Idle time setting for disconnection. 0 min means no disconnection	Optional

8. Repeat the above steps to set all **Dynamic** ports.
9. Press **Esc** to go back to **PORT MENU**.

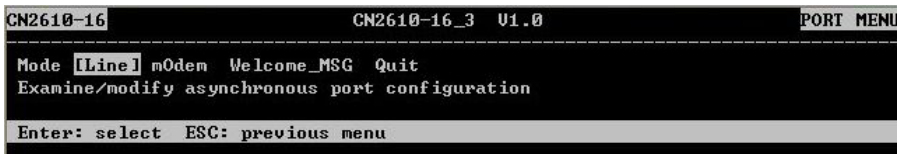
Configuring Port Setting – Port Menu [Line]

In **PORT MENU [Line]**, you can set line settings for the particular type of device being used.

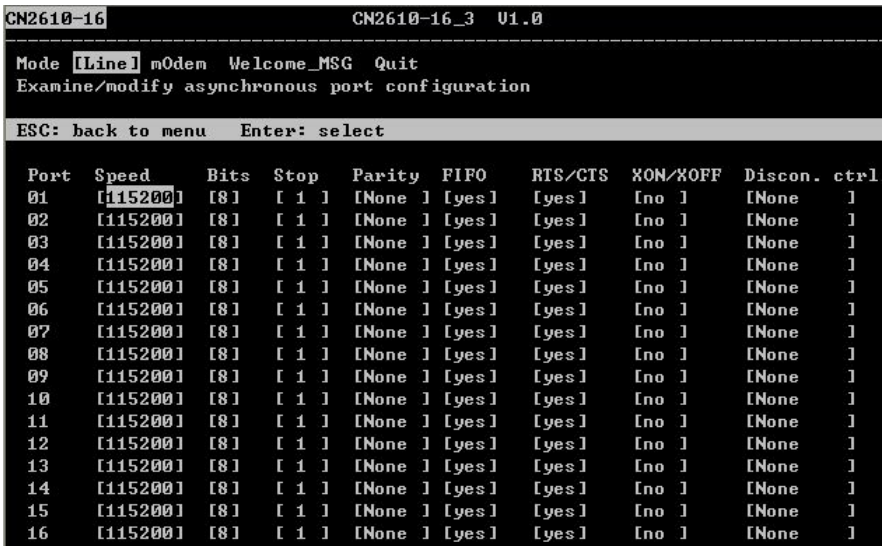
1. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

2. In **PORT MENU**, select **Line**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
Enter: select ESC: previous menu

3. Specify settings.


CN2610-16 CN2610-16_3 V1.0
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
ESC: back to menu Enter: select
Port Speed Bits Stop Parity FIFO RTS/CTS XON/XOFF Discon. ctrl
01 [115200] [8] [1] [None] [yes] [yes] [no] [None]
02 [115200] [8] [1] [None] [yes] [yes] [no] [None]
03 [115200] [8] [1] [None] [yes] [yes] [no] [None]
04 [115200] [8] [1] [None] [yes] [yes] [no] [None]
05 [115200] [8] [1] [None] [yes] [yes] [no] [None]
06 [115200] [8] [1] [None] [yes] [yes] [no] [None]
07 [115200] [8] [1] [None] [yes] [yes] [no] [None]
08 [115200] [8] [1] [None] [yes] [yes] [no] [None]
09 [115200] [8] [1] [None] [yes] [yes] [no] [None]
10 [115200] [8] [1] [None] [yes] [yes] [no] [None]
11 [115200] [8] [1] [None] [yes] [yes] [no] [None]
12 [115200] [8] [1] [None] [yes] [yes] [no] [None]
13 [115200] [8] [1] [None] [yes] [yes] [no] [None]
14 [115200] [8] [1] [None] [yes] [yes] [no] [None]
15 [115200] [8] [1] [None] [yes] [yes] [no] [None]
16 [115200] [8] [1] [None] [yes] [yes] [no] [None]

Setting	Value	Notes
Speed	50 – 230.4 Kbps	Transmission speed
Bits	5/6/7/8	Data bit
Stop	1/1.5/2	Stop bit
Parity	None/Even/Odd/Mark/Space	Parity check
FIFO	Yes/No	FIFO setting. Default is Yes
RTS/CTS	Yes/No	Hardware flow control

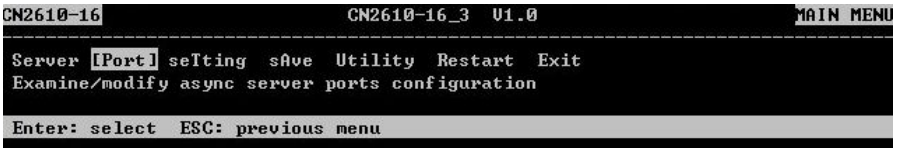
XON/XOFF	Yes/No	Software flow control
Discon. Ctrl	None/DSR off/DCD off	Recommend use [DCD off]

4. Repeat the above steps to set all lines.
5. Press **Esc** to return to **PORT MENU**.

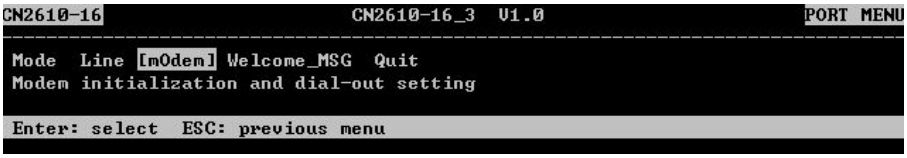
Configuring Modem Initialization – Port Menu [Modem]

In **PORT MENU [Modem]**, set modem dial-out initialization and dial-out phone number.

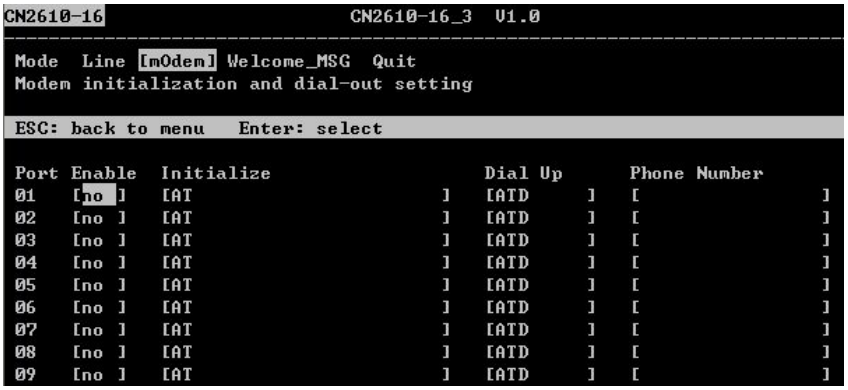
1. In **MAIN MENU**, use the arrow keys to select **Port** for port setting, and then press **Enter**.



2. In **PORT MENU**, select **mOdem** for application setting and press **Enter**.



3. Specify modem settings.


CN2610-16
CN2610-16_3 V1.0
Mode Line [mOdem] Welcome_MSG Quit
Modem initialization and dial-out setting
ESC: back to menu Enter: select
Port Enable Initialize Dial Up Phone Number
01 [no] [AT] [ATD] [ ]
02 [no] [AT] [ATD] [ ]
03 [no] [AT] [ATD] [ ]
04 [no] [AT] [ATD] [ ]
05 [no] [AT] [ATD] [ ]
06 [no] [AT] [ATD] [ ]
07 [no] [AT] [ATD] [ ]
08 [no] [AT] [ATD] [ ]
09 [no] [AT] [ATD] [ ]

Setting	Value	Notes
Enable	YES/NO	Enable modem settings
Initialize	String	Set modem initial string, for example, AT&S0 =1 is for auto-answer.
Dial Up	String	Dial-up AT command
Phone Number	Number	Set the number you use to dial out

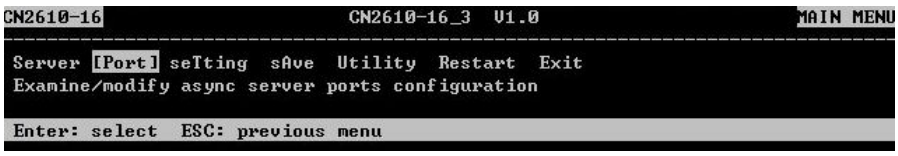
NOTE The **Dial Up** and **Phone Number** settings are only valid under PPP/SLIP mode.

4. Repeat the above steps to set all modem initializations.
5. Press **Esc** to go back to **PORT MENU**.

Optional Welcome Message – Port Menu [Welcome_MSG]

In **PORT MENU [Welcome_MSG]**, set welcome message to greet dial in users.

1. In **MAIN MENU**, move arrow key to select **Port** for port setting and press **Enter**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

2. In **PORT MENU**, select **Welcome_MSG** for application setting and press **Enter**.

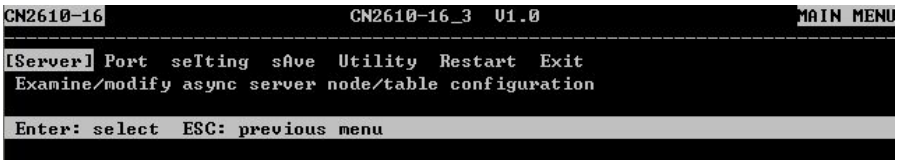
CN2610-16 CN2610-16_3 V1.0
Mode Line mOdem [Welcome_MSG] Quit
Edit the hello message for Terminal port
ESC: back to menu Enter: select
Enable hello message : [yes]
<<< Moxa Async Server >>>

3. Select **YES** to edit welcome message.
4. Press **Esc** to go back to **PORT MENU**.

Optional local user information – Server Menu [User_table]

In **Server Menu [User_Table]**, set local user authentication information. If you set **Incoming PAP check** or **Authentication type** as **Local** instead of **Server**, you have to set **[User_table]** for user authentication. You can also activate the call-back function under the User-Table.

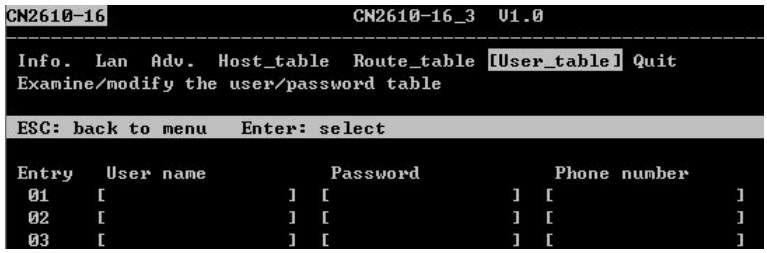
1. In **MAIN MENU**, select **Server.**


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
[Server] Port seTting sAve Utility Restart Exit
Examine/modify async server node/table configuration
Enter: select ESC: previous menu

2. In **SERVER MENU**, select **User_table**.

CN2610-16 CN2610-16_3 V1.0 SERVER MENU
Info. Lan Adv. Host_table Route_table [User_table] Quit
Examine/modify the user/password table
Enter: select ESC: previous menu

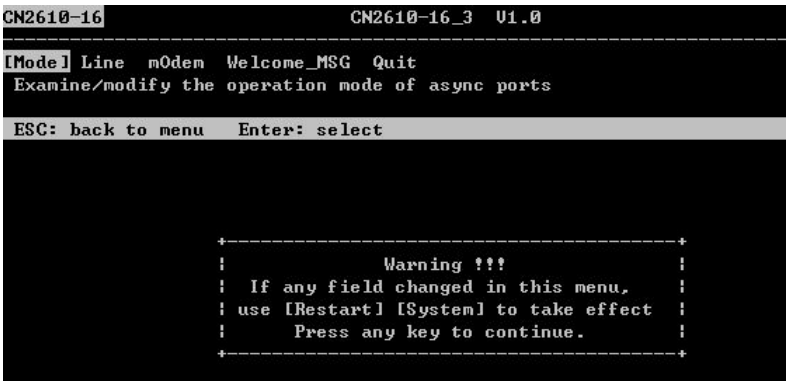
3. Use the arrow keys to position the cursor and then input user name and password. If you want to active the automatic call back function, input the user phone number. CN2610 is able to store information for up to 64 users.


CN2610-16 CN2610-16_3 V1.0
Info. Lan Adv. Host_table Route_table [User_table] Quit
Examine/modify the user/password table
ESC: back to menu Enter: select
Entry User name Password Phone number
01 02 03

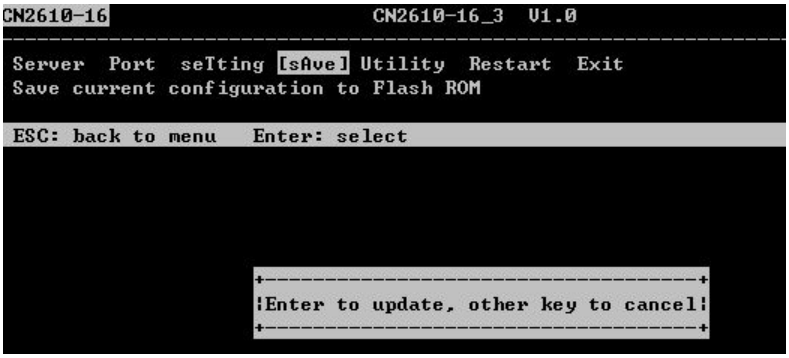
4. Press **Esc** to return to **MAIN MENU**.

Save

1. Press **Y** to save previous settings when exiting **PORT MENU**.

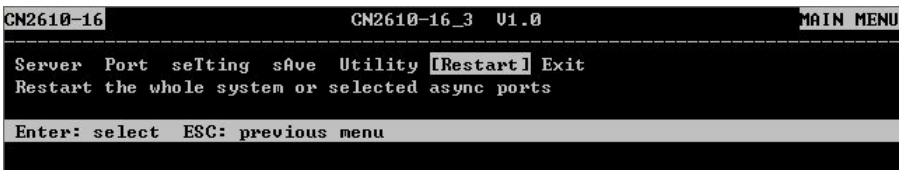

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Warning !!!
If any field changed in this menu,
use [Restart] [System] to take effect
Press any key to continue.

2. You may also save later. In **MAIN MENU**, select **sAve** to save all changed settings, and then press **Enter** to confirm.


CN2610-16 CN2610-16_3 V1.0
Server Port seTting [sAve] Utility Restart Exit
Save current configuration to Flash ROM
ESC: back to menu Enter: select
Enter to update, other key to cancel!

Restart

1. Return to **MAIN MENU** and select **Restart**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port seTting sAve Utility [Restart] Exit
Restart the whole system or selected async ports
Enter: select ESC: previous menu

2. Select **System**, and then press **Enter** to continue.

CN2610-16 CN2610-16_3 V1.0
[System] Port Quit
Restart the Async Server
ESC: back to menu Enter: select
Warning !!!
Restart system will disconnect all ports and clear all status value
Enter: continue ESC: cancel

3. The system will restart and the Telnet/Console session will terminate. Enter **MAIN MENU** again to check whether the settings have been changed.

12

Setting up Network Printer

We describe here the steps for configuring Moxa CN2610 as a printer server. Up to 16 serial printers can be simultaneously connected to CN2610. The serial printer server function is configured through port menu, and is able to accommodate up to 16 ports.

Configuring Port Operation Mode – Port Menu [Mode]

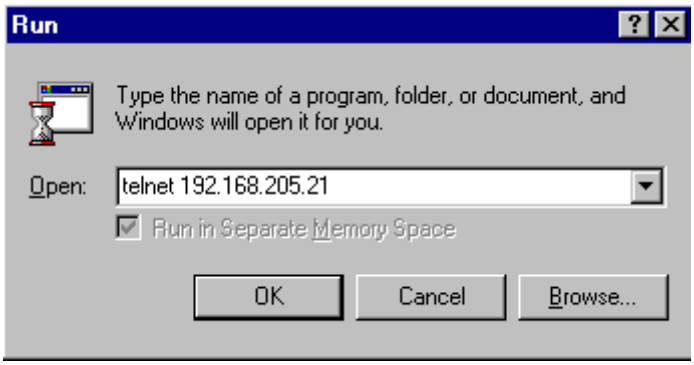
- Raw PRN Mode
- LPD PRN Mode

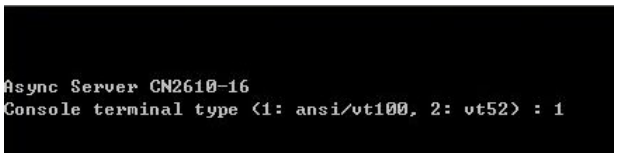
- **Configuring Port Connection Setting – Port Menu [Line]**
- **Save**
- **Restart**
- **Setting up Unix Hosts**
  - Setting up a SCO Unix Host
  - Setting up a SOLARIS X86 Host
  - Setting up a LINUX Host
- **Setting up Windows Hosts**
  - Setting up a Windows NT Host
  - Setting up a Windows 2000 Host

Configuring Port Operation Mode – Port Menu [Mode]

In **Port Menu [Mode]**, you can printer server application for the ports, and specify parameter settings.

1. Enter CN2610's **MAIN MENU**. Use either Telnet from a network terminal, or connect directly to Async Server with a console terminal. Choose **ansi/vt100** and then press **Enter**. Refer to Chapter 2 if you have trouble entering **MAIN MENU**.

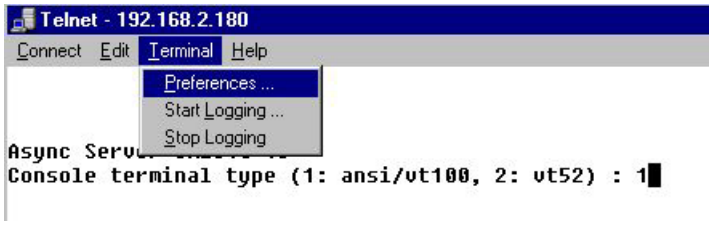


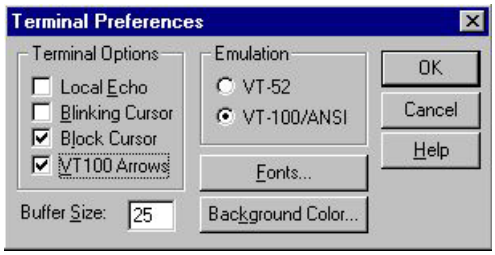


2. Below we show CN2610's **MAIN MENU**. Familiarize yourself with the cursor movement functions before we start.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

If you have problems using the arrow keys to move the cursor in Windows 9x or NT environment, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.

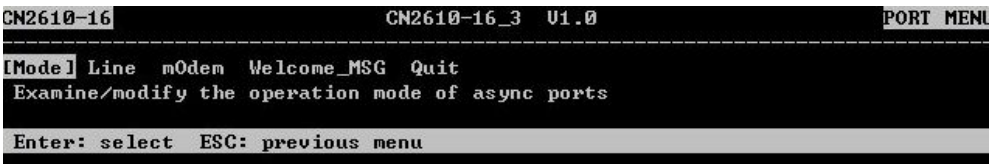




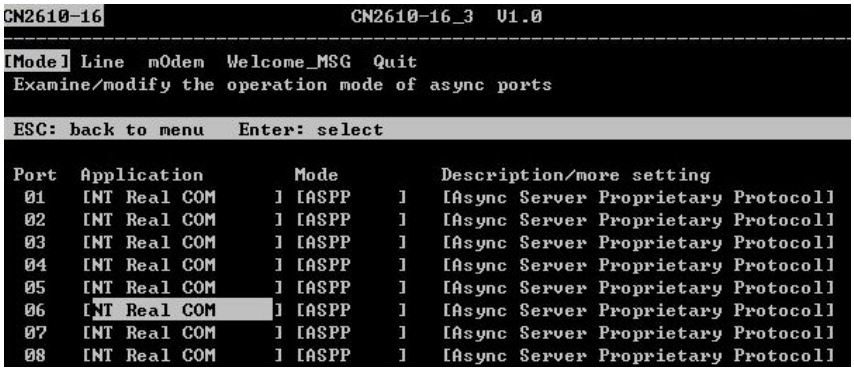
3. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

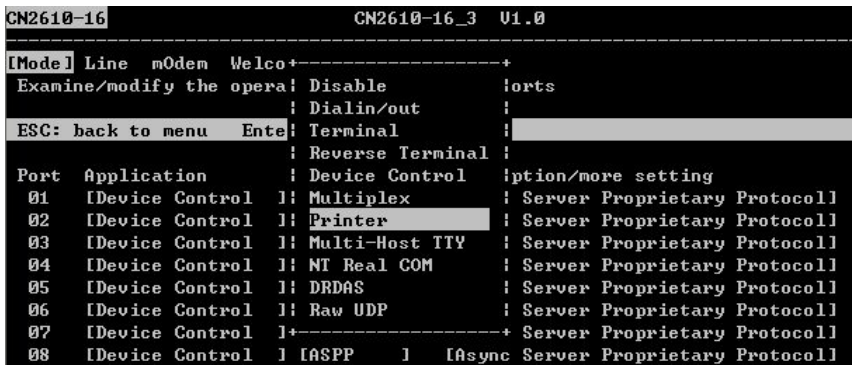
4. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
Enter: select ESC: previous menu

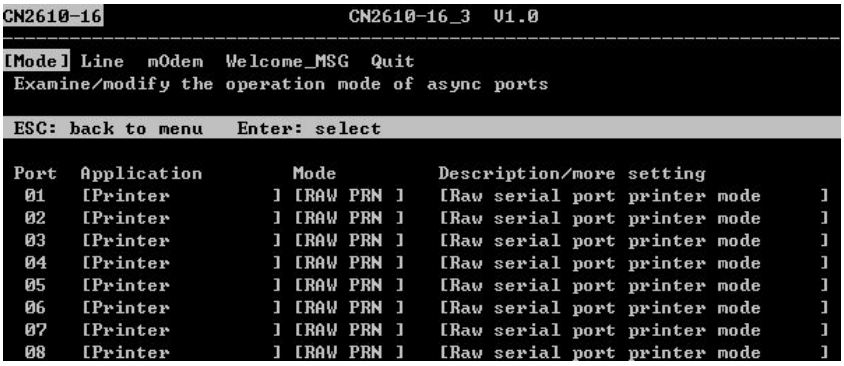
5. In **Mode**, use the arrow keys to move the cursor to the application corresponding to serial ports. Here we use Port 6 as an example.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
02 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
03 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
04 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
08 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

6. Press **Enter** to open application window. Use up/down arrow keys to select **Printer**, and then press **Enter** to confirm.

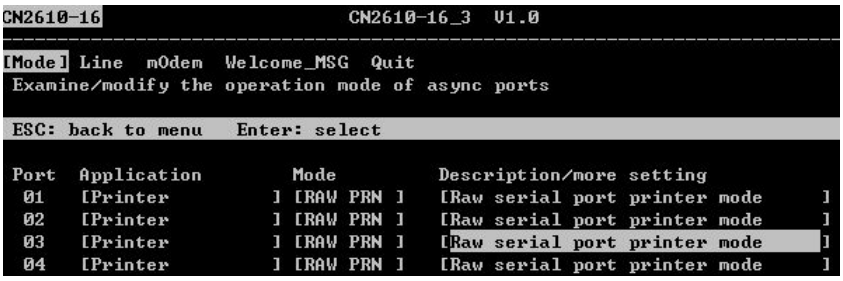


7. Repeat Step 1 to 6 to configure port settings. For example, you can follow the steps described below to configure Port 1 to Port 16 for **Printer** application.

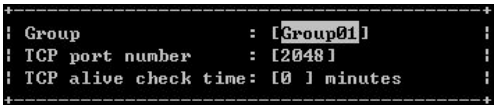

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Printer] [RAW PRN] [Raw serial port printer mode]
02 [Printer] [RAW PRN] [Raw serial port printer mode]
03 [Printer] [RAW PRN] [Raw serial port printer mode]
04 [Printer] [RAW PRN] [Raw serial port printer mode]
05 [Printer] [RAW PRN] [Raw serial port printer mode]
06 [Printer] [RAW PRN] [Raw serial port printer mode]
07 [Printer] [RAW PRN] [Raw serial port printer mode]
08 [Printer] [RAW PRN] [Raw serial port printer mode]

Raw PRN Mode

1. Move cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Printer] [RAW PRN] [Raw serial port printer mode]
02 [Printer] [RAW PRN] [Raw serial port printer mode]
03 [Printer] [RAW PRN] [Raw serial port printer mode]
04 [Printer] [RAW PRN] [Raw serial port printer mode]

2. **Printer Description/More Setting** window.



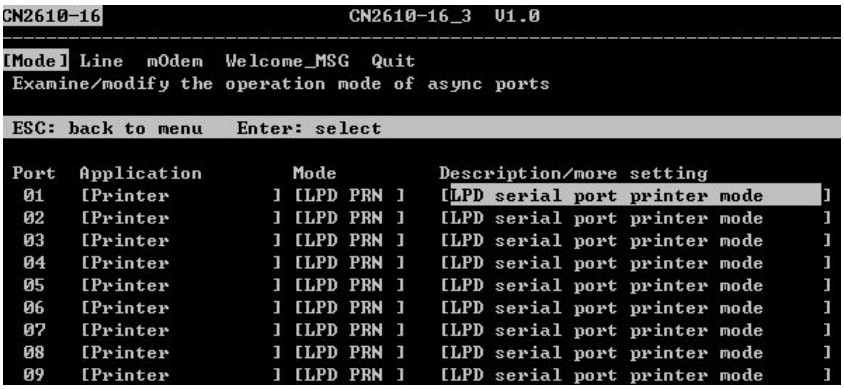
Setting	Value	Notes	Necessity
Group	Group 01-16	Group the printers so that printers in the same group can share the printing load.	Optional
TCP port number	2048-2063	Setting depends on the group setting.	Fixed
TCP alive check time	0-99 minutes	Specify the time slice for checking whether the TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection.	Optional

Group	TCP port number	Group	TCP port number
01	2048	09	2056
02	2049	10	2057
03	2050	11	2058
04	2051	12	2059
05	2052	13	2060
06	2053	14	2061
07	2054	15	2062
08	2055	16	2063

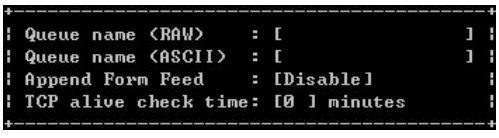
3. Repeat the steps above to set all Fix TTY ports.
4. Press **Esc** to return to **PORT MENU**.

LPD PRN Mode

1. Move cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Printer] [LPD PRN] [LPD serial port printer mode]
02 [Printer] [LPD PRN] [LPD serial port printer mode]
03 [Printer] [LPD PRN] [LPD serial port printer mode]
04 [Printer] [LPD PRN] [LPD serial port printer mode]
05 [Printer] [LPD PRN] [LPD serial port printer mode]
06 [Printer] [LPD PRN] [LPD serial port printer mode]
07 [Printer] [LPD PRN] [LPD serial port printer mode]
08 [Printer] [LPD PRN] [LPD serial port printer mode]
09 [Printer] [LPD PRN] [LPD serial port printer mode]

2. **Printer Description/More Setting** window.



Setting	Value	Notes	Necessity
Queue name (RAW)	Letters	Specify print queue's name (in RAW mode)	Fixed
Queue name (ASCII)	Letters	Specify print queue's name (in ASCII mode)	Fixed
Append From Feed	Enable/Disable	Specify paging	Optional
TCP alive check time	0-99 minutes	Specify the time slice for checking whether the TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection.	Optional

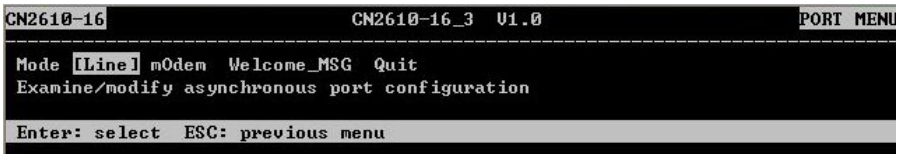
Configuring Port Setting – Port Menu [Line]

In **PORT MENU [Line]**, you can set line settings for the particular type of device being used.

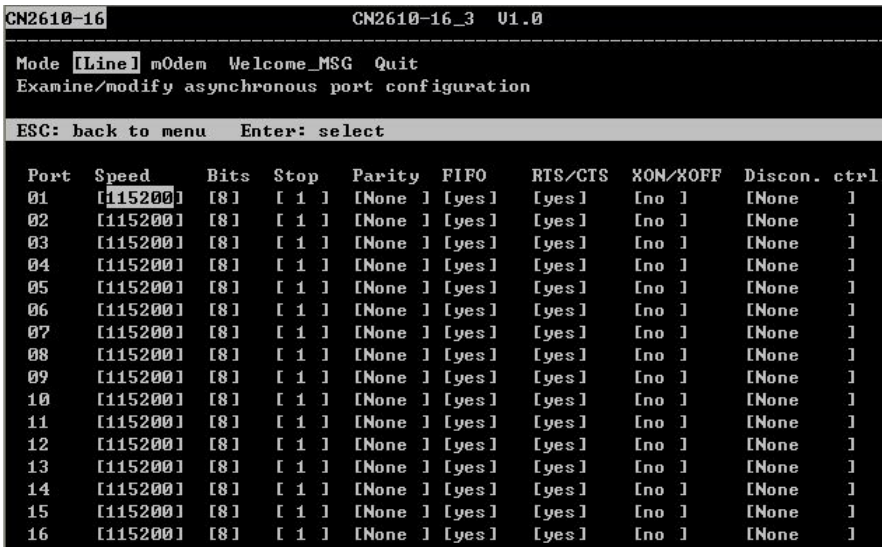
1. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

2. In **PORT MENU**, select **Line**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
Enter: select ESC: previous menu

3. Specify settings.

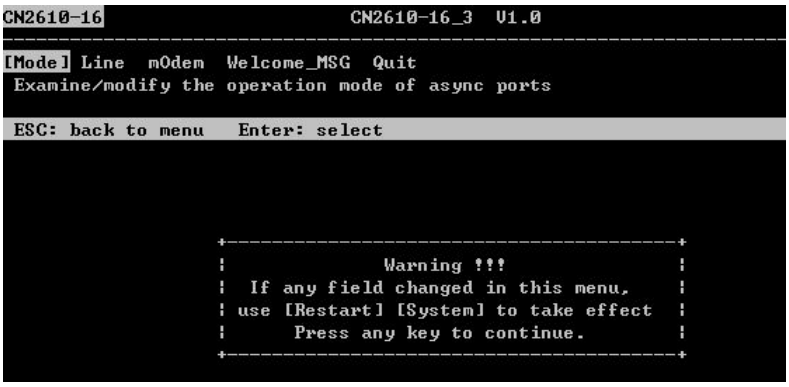

CN2610-16 CN2610-16_3 V1.0
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
ESC: back to menu Enter: select
Port Speed Bits Stop Parity FIFO RTS/CTS XON/XOFF Discon. ctrl
01 [115200] [8] [1] [None] [yes] [yes] [no] [None]
02 [115200] [8] [1] [None] [yes] [yes] [no] [None]
03 [115200] [8] [1] [None] [yes] [yes] [no] [None]
04 [115200] [8] [1] [None] [yes] [yes] [no] [None]
05 [115200] [8] [1] [None] [yes] [yes] [no] [None]
06 [115200] [8] [1] [None] [yes] [yes] [no] [None]
07 [115200] [8] [1] [None] [yes] [yes] [no] [None]
08 [115200] [8] [1] [None] [yes] [yes] [no] [None]
09 [115200] [8] [1] [None] [yes] [yes] [no] [None]
10 [115200] [8] [1] [None] [yes] [yes] [no] [None]
11 [115200] [8] [1] [None] [yes] [yes] [no] [None]
12 [115200] [8] [1] [None] [yes] [yes] [no] [None]
13 [115200] [8] [1] [None] [yes] [yes] [no] [None]
14 [115200] [8] [1] [None] [yes] [yes] [no] [None]
15 [115200] [8] [1] [None] [yes] [yes] [no] [None]
16 [115200] [8] [1] [None] [yes] [yes] [no] [None]

Setting	Value	Notes
Speed	50 – 230.4 Kbps	Transmission speed
Bits	5/6/7/8	Data bit
Stop	1/1.5/2	Stop bit
Parity	None/Even/Odd/Mark/Space	Parity check
FIFO	Yes/No	FIFO setting. Default is Yes
RTS/CTS	Yes/No	Hardware flow control
XON/XOFF	Yes/No	Software flow control
Discon. Ctrl	None/DSR off/DCD off	Inactive for these modes

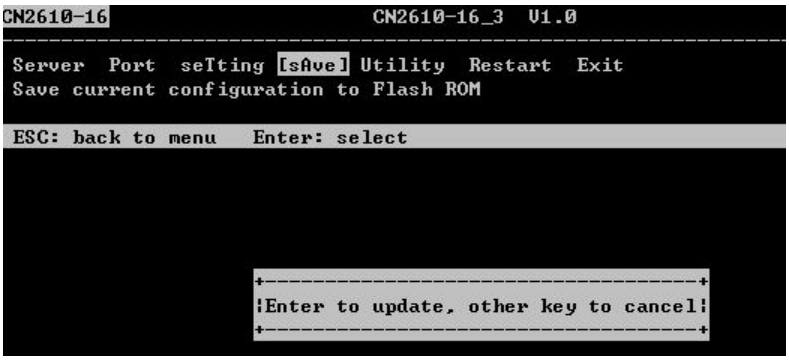
4. Repeat the above steps to set all lines.
5. Press **Esc** to return to **PORT MENU**.

Save

1. Press **Y** to save previous settings when exiting **PORT MENU**.

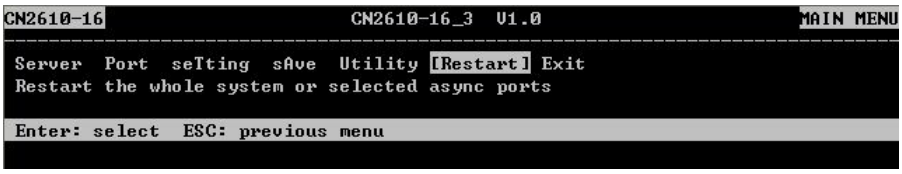

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Warning !!!
If any field changed in this menu,
use [Restart] [System] to take effect
Press any key to continue.

2. You may also save later. In **MAIN MENU**, select **sAve** to save all changed settings, and then press **Enter** to confirm.


CN2610-16 CN2610-16_3 V1.0
Server Port seTting [sAve] Utility Restart Exit
Save current configuration to Flash ROM
ESC: back to menu Enter: select
Enter to update, other key to cancel

Restart

1. Return to **MAIN MENU** and select **Restart**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port seTting sAve Utility [Restart] Exit
Restart the whole system or selected async ports
Enter: select ESC: previous menu

2. Select **System**, and then press **Enter** to continue.

CN2610-16 CN2610-16_3 V1.0
[System] Port Quit
Restart the Async Server
ESC: back to menu Enter: select
Warning !!!
Restart system will disconnect all ports and clear all status value
Enter: continue ESC: cancel

3. The system will restart and the Telnet/Console session will terminate. Enter **MAIN MENU** again to check whether the settings have been changed.

Setting up Unix Hosts

UNIX uses the RLP program for remote parallel printing. For serial printing, Moxa provides the `asprint` utility program, which consists of two files, `asprint.c` and `asprint.mak`. First uncompress `printer.tar.Z` to the `\printer` directory, and then locate the files `asprint.c` and `asprint.mak`. To compile and link, you may need to modify the source file `asprint.c`. For instance, in SCO UNIX you must link to the `libnls.a` library, in Solaris to `libnsl.a`, and in Venix to the `libnsl_s.a`.

Setting up a SCO Unix Host

Steps	SCO UNIX Command	Description
Uncompress all programs	#tar /dev/fd0 ./	
Uncompress printer.tar.Z to ./printer	#tar xvf printer.tar.Z	
compile/link	#make -f sco_unix.mak	
make printer node	#mknod /dev/iop1 p	Create a unique pipe name for each printer group. Since there are 16 groups of TCP port numbers (from 2048 to 2063), you need to create 16 respective pipe names. For example: iop1, iop2, iop3, etc.
set it to printer	#chown lp /dev/iop1	Change the pipe owner to 1p
set rw	#chmod 600 /dev/iop1	Change access permission to 600 or rw-----
set printer name	#/usr/lib/lpadmin -pLaser1 -v/dev/iop1	Redirect the printer spooler to write to pipe 'iop1'. Assumes the printer name is Laser1.
execute asprint for Group 01	#/asprint /dev/iop1 'CN2610 IP address' 2048 &	Start 'asprint' utility to read from pipe 'iop1' and write to the CN2610 printer port. '/dev/iop1': the device name the spooler is writing to. 'CN2610': the host name of the CN2610 as defined in /etc/hosts, or its IP address. '2048': the TCP port number (Group01) of the printer port on the CN2610.
accept printer Laser1	#/usr/lib/accept Laser1	Set Laser 1 to accept print request.
enable Laser1	#enable printer Laser1	enable Laser1
print file to Laser1	#lp -dLaser1 file_name	send print job to the CN2610
Repeat		Repeat the above steps to set up another printer. For printers in the same group, it is not necessary to repeat every step.

Setting up a SOLARIS X86 Host

Steps	SCO UNIX Command	Description
Set free the occupied Floppy disk	#/etc/init.d/volmgt stop	
Uncompress all programs	#tar /dev/fd0 ./	
Uncompress printer.tar.Z to ./printer	#tar xvf printer.tar.Z	
compile/link	#make -f sco_unix.mak	
make printer node	#mknod /dev/iop1 p	Create a unique pipe name for each printer group. Since there are 16 groups of TCP port numbers (from 2048 to 2063), you need to create 16 respective pipe names. For example: iop1, iop2, iop3, etc.
set it to printer	#chown lp /dev/iop1	Change the pipe owner to 1p
set rw	#chmod 600 /dev/iop1	Change access permission to 600 or rw-----
set printer name	#/usr/lib/lpadmin -pLaser1 -v/dev/iop1	Redirect the printer spooler to write to pipe 'iop1'. Assumes the printer name is Laser1.
execute asprint for Group 01	#/asprint /dev/iop1 'CN2610 IP address' 2048 &	Start 'asprint' utility to read from pipe 'iop1' and write to the CN2610 printer port. '/dev/iop1': the device name the spooler is writing to. 'CN2610': the host name of the CN2610 as defined in /etc/hosts, or its IP address. '2048': the TCP port number (Group01) of the printer port on the CN2610.
accept printer Laser1	#/usr/lib/accept Laser1	Set Laser 1 to accept print request.
enable Laser1	#enable printer Laser1	enable Laser1
print file to Laser1	#lp -dLaser1 file_name	send print job to the CN2610
Repeat		Repeat the above steps to set up another printer. For printers in the same group, it is not necessary to repeat every step.

Setting up a LINUX Host

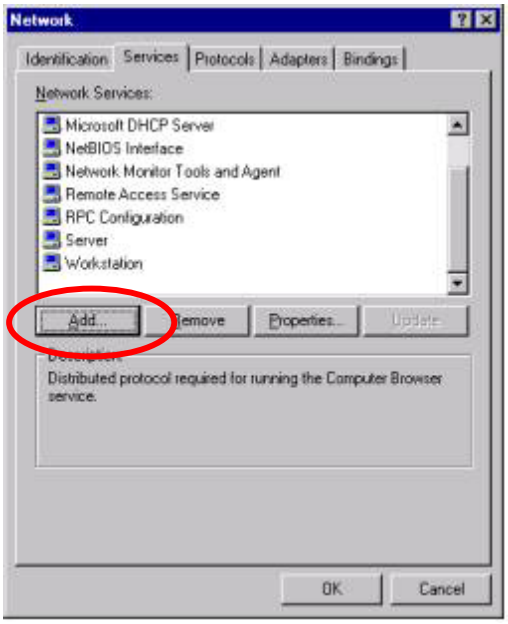
Steps	SCO UNIX Command	Description
Uncompress all programs	#tar /dev/fd0 ./	
Uncompress printer.tar.Z to ./printer	#tar xvf printer.tar.Z	
compile/link	#make -f sco_unix.mak	
make printer node	#mknod /dev/iop1 p	Create a unique pipe name for each printer group. Since there are 16 groups of TCP port numbers (from 2048 to 2063), you need to create 16 respective pipe names. For example: iop1, iop2, iop3, etc.
set it to printer	#chown lp /dev/iop1	Change the pipe owner to 1p
set rw	#chmod 600 /dev/iop1	Change access permission to 600 or rw-----
set printer name	#/usr/lib/lpadmin -pLaser1 -v/dev/iop1	Redirect the printer spooler to write to pipe 'iop1'. Assumes the printer name is Laser1.
	add one line to /etc/printcap file Laser1:lp=/dev/iop1,sd=/usr/spool/Laser1	
make spool directory	#mkdir /usr/spool/Laser1	
execute asprint for Group 01	#/asprint /dev/iop1 'CN2610 IP address' 2048 &	Start 'asprint' utility to read from pipe 'iop1' and write to the CN2610 printer port. '/dev/iop1': the device name the spooler is writing to. 'CN2610': the host name of the CN2610 as defined in /etc/hosts, or its IP address. '2048': the TCP port number (Group01) of the printer port on the CN2610.
accept printer Laser1	#lpr -PLaser1 file_name.txt	Set Laser 1 to accept print request.
Repeat		Repeat the above steps to set up another printer. For printers in the same group, it is not necessary to repeat every step.

Setting up Windows Hosts

Windows uses LPD/LPR application to access printers. Moxa provides LPD PRN mode for serial printing. In this section, we explain how to install a LPD/LPR printer in a Windows NT/2000 environment to access the serial printer connected to a CN2610 Async Server.

Setting up a Windows NT Host

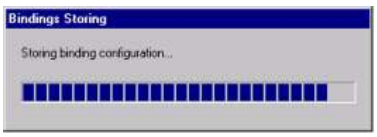
1. First, you need to add TCP/IP printing service to your Windows NT.
2. Go to **Start → Settings → Control Panel → Network**. Click on **Services** tab, and then select **Add**.



3. Select **Microsoft TCP/IP Printing**, and then click on **OK** to continue.

Select Network Service
Click the Network Service that you want to install, then click OK. If you have an installation disk for this component, click Have Disk.
Network Service:
Microsoft TCP/IP Printing
NetBIOS Interface
Network Monitor Agent
Network Monitor Tools and Agent
Remote Access Service
Have Disk...
OK
Cancel

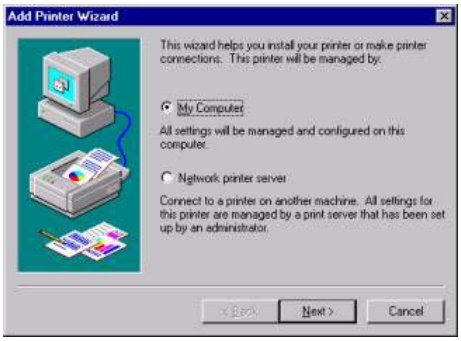
4. Insert Windows NT installation CD to your computer's CD driver.
5. Allow the Microsoft TCP/IP Printing service to be added, and reboot your computer.



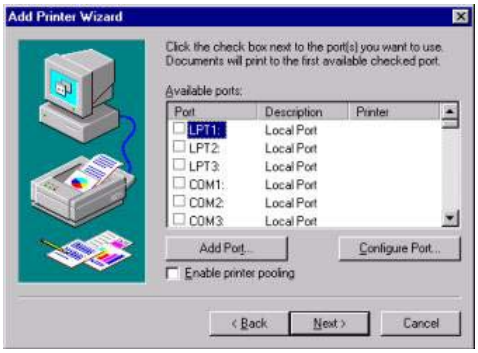
6. Now you can start configuring your LPR/LPD Printer.
7. Click on **Start → Settings → Printers**.

8. Click on **Add Printer** to start and **Add Printer Wizard**.

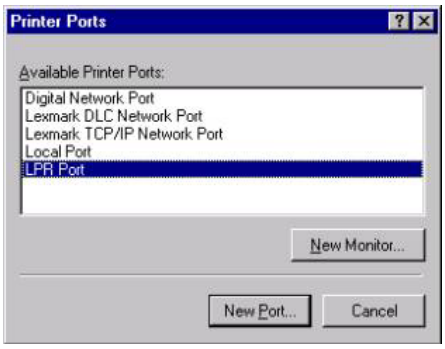
9. Select **My Computer**, and then click on **Next** to continue.


Add Printer Wizard
This wizard helps you install your printer or make printer connections. This printer will be managed by:
My Computer
All settings will be managed and configured on this computer.
Network printer server
Connect to a printer on another machine. All settings for this printer are managed by a print server that has been set up by an administrator.
< Back
Next >
Cancel

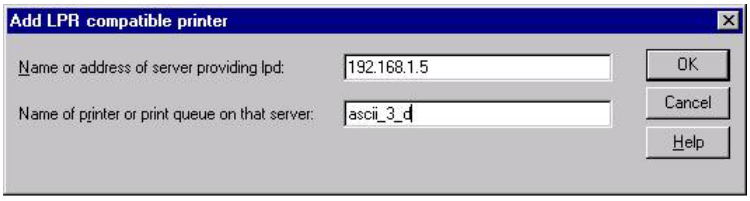
10. In the window that opens next, click on **Add Port**.



11. Select LPR Port.

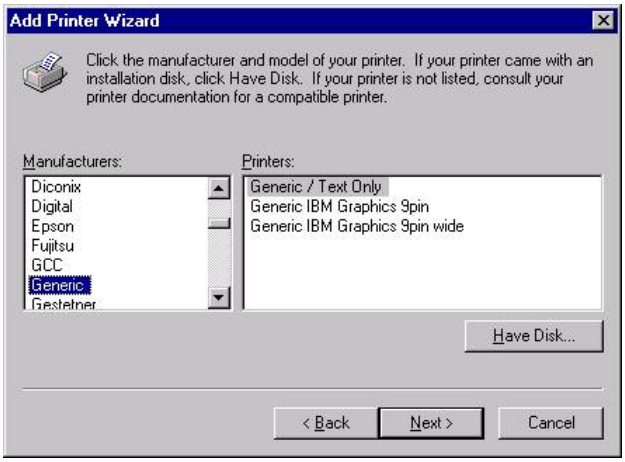


12. Enter CN2610's IP Address, and then enter Print Queue's name. Click on **OK** to continue.

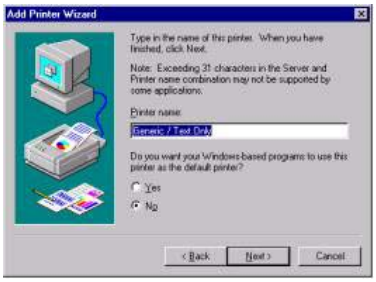


13. Select **logical printer port** for the LPR port you just added. It should be the IP address of the port.

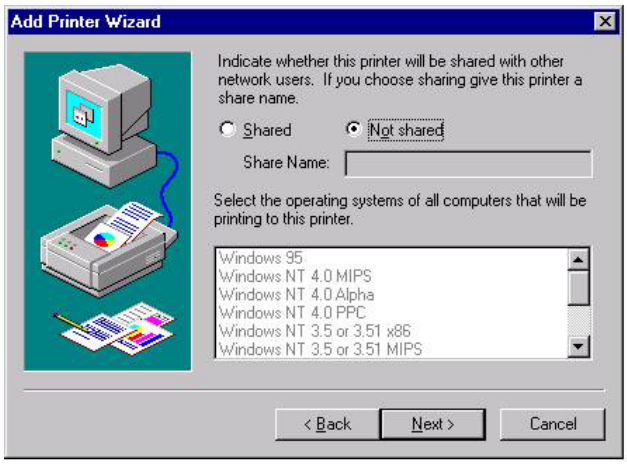
14. Select the printer's manufacturer and model name. Click on **Next** to continue.


Add Printer Wizard
Click the manufacturer and model of your printer. If your printer came with an installation disk, click Have Disk. If your printer is not listed, consult your printer documentation for a compatible printer.
Manufacturers:
Diconix
Digital
Epson
Fujitsu
GCC
Generic
Printers:
Generic / Text Only
Generic IBM Graphics 9pin
Generic IBM Graphics 9pin wide
Have Disk...
< Back
Next >
Cancel

15. Enter the printer's name, and select yes if you wish to set this printer as default printer. Click on **Next** to continue.


Add Printer Wizard
Type in the name of this printer. When you have finished, click Next.
Note: Exceeding 31 characters in the Server and Printer name combination may not be supported by some applications.
Printer name:
Generic / Text Only
Do you want your Windows-based programs to use this printer as the default printer?
Yes
No
< Back
Next >
Cancel

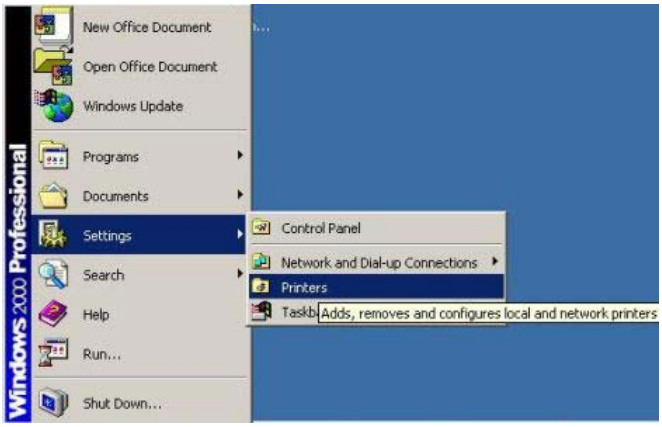
16. Select **Shared** when prompted with questions asking if the printer is to be shared or not, and then enter the name of the shared printer.


Add Printer Wizard
Indicate whether this printer will be shared with other network users. If you choose sharing give this printer a share name.
Shared
Not shared
Share Name:
Select the operating systems of all computers that will be printing to this printer.
Windows 95
Windows NT 4.0 MIPS
Windows NT 4.0 Alpha
Windows NT 4.0 PPC
Windows NT 3.5 or 3.51 x86
Windows NT 3.5 or 3.51 MIPS
< Back
Next >
Cancel

17. Perform printing test pages if needed. Click on **OK** to finish.

Setting up a Windows 2000 Host

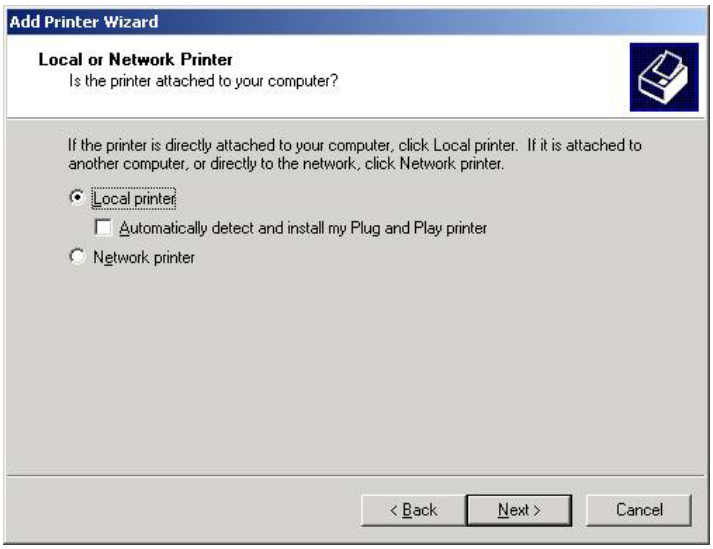
1. Click on **Start → Settings → Printers**.



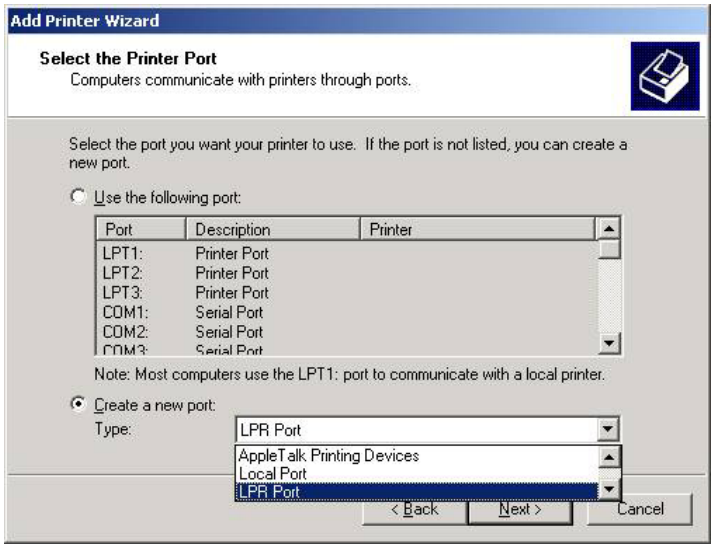
2. Click on **Add Printer** to start and **Add Printer Wizard**.
3. A Welcome message will appear. Click on Next to continue.

Add Printer Wizard
Welcome to the Add Printer Wizard
This wizard helps you install a printer or make printer connections.
To continue, click Next.
< Back
Next >
Cancel

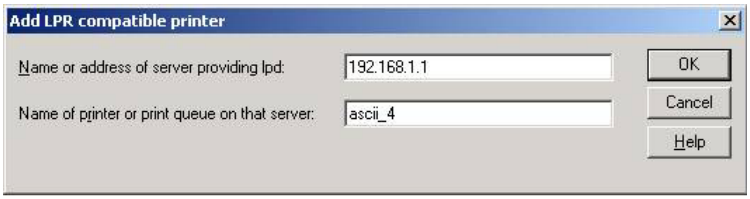
4. Select **Local printer**, and click on **Next** to continue.


Add Printer Wizard
Local or Network Printer
Is the printer attached to your computer?
If the printer is directly attached to your computer, click Local printer. If it is attached to another computer, or directly to the network, click Network printer.
Local printer
Automatically detect and install my Plug and Play printer
Network printer
< Back
Next >
Cancel

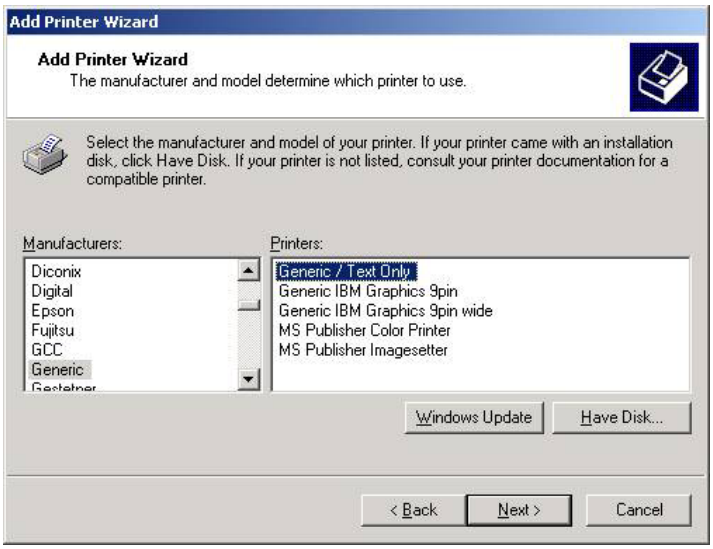
5. Select Create a new port:, and select LPR Port from the drop down list.


Add Printer Wizard
Select the Printer Port
Computers communicate with printers through ports.
Select the port you want your printer to use. If the port is not listed, you can create a new port.
Use the following port:
Port
Description
Printer
LPT1: Printer Port
LPT2: Printer Port
LPT3: Printer Port
COM1: Serial Port
COM2: Serial Port
Note: Most computers use the LPT1: port to communicate with a local printer.
Create a new port:
Type:
LPR Port
AppleTalk Printing Devices
Local Port
LPR Port
< Back
Next >
Cancel

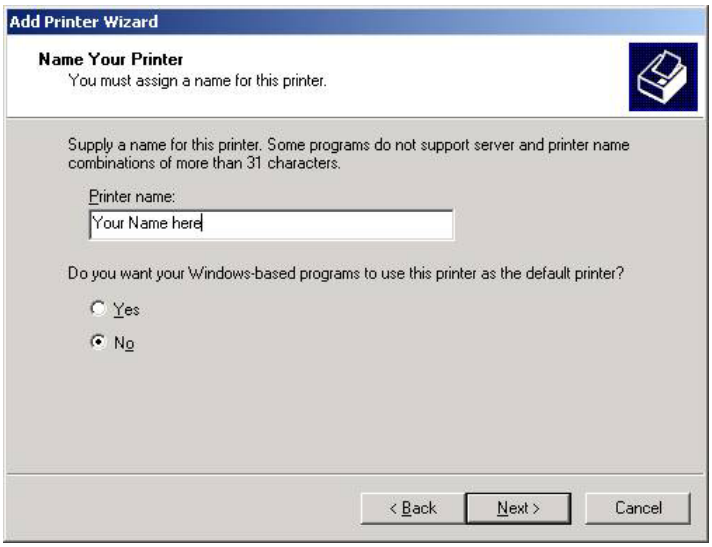
6. Enter CN2610's IP Address, and then enter Print Queue's name. Click on **OK** to continue.



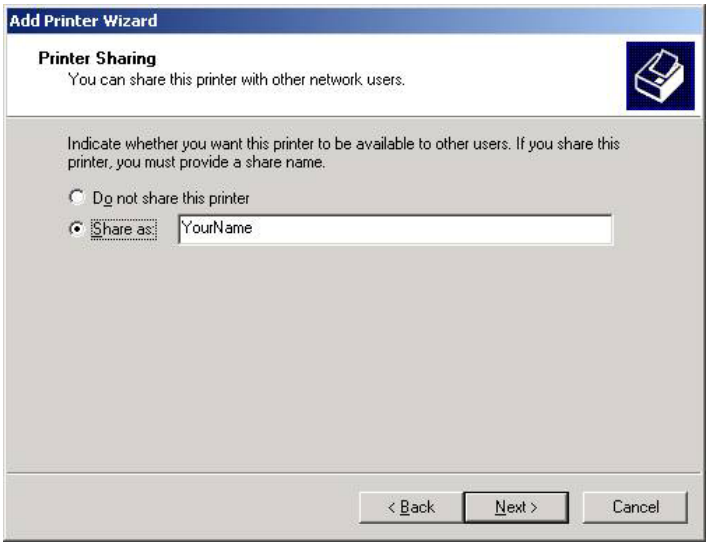
7. Select the printer's manufacturer and model name. Click on **Next** to continue.


Add Printer Wizard
Add Printer Wizard
The manufacturer and model determine which printer to use.
Select the manufacturer and model of your printer. If your printer came with an installation disk, click Have Disk. If your printer is not listed, consult your printer documentation for a compatible printer.
Manufacturers:
Diconix
Digital
Epson
Fujitsu
GCC
Generic
Printers:
Generic / Text Only
Generic IBM Graphics 9pin
Generic IBM Graphics 9pin wide
MS Publisher Color Printer
MS Publisher Imagesetter
Windows Update
Have Disk...
< Back
Next >
Cancel

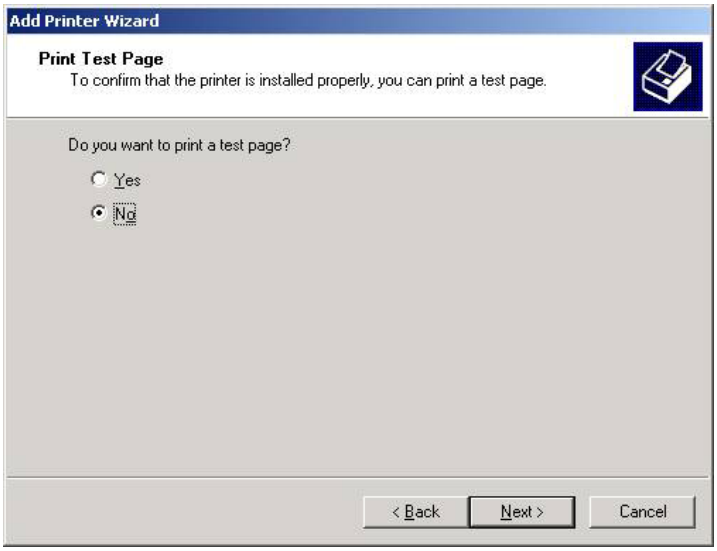
8. Enter the printer's name, and select yes if you wish to set this printer as default printer. Click on **Next** to continue.


Add Printer Wizard
Name Your Printer
You must assign a name for this printer.
Supply a name for this printer. Some programs do not support server and printer name combinations of more than 31 characters.
Printer name:
Your Name here
Do you want your Windows-based programs to use this printer as the default printer?
Yes
No
< Back
Next >
Cancel

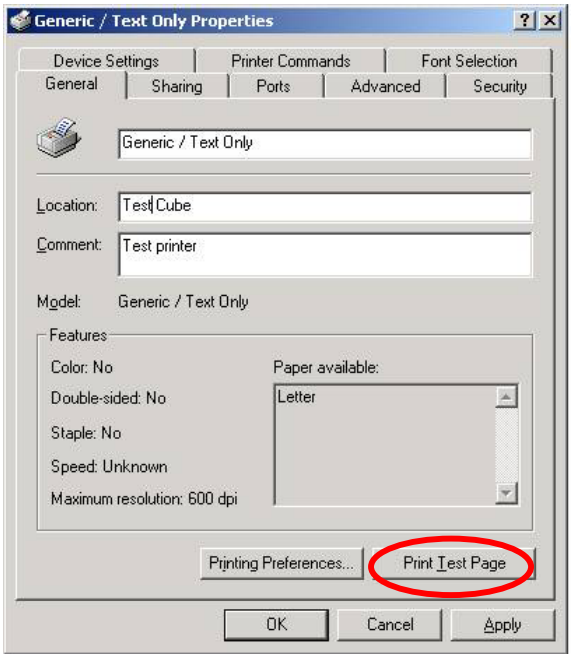
9. Select **Shared** when prompted with questions asking if the printer is to be shared or not, and then enter the name of the shared printer.


Add Printer Wizard
Printer Sharing
You can share this printer with other network users.
Indicate whether you want this printer to be available to other users. If you share this printer, you must provide a share name.
Do not share this printer
Share as:
YourName
< Back
Next >
Cancel

10. You need to reboot Windows 2000 to enable the printer you just added. When asked if you want to print a test page, select **No**. Click on **Next** to continue.


Add Printer Wizard
Print Test Page
To confirm that the printer is installed properly, you can print a test page.
Do you want to print a test page?
Yes
No
< Back
Next >
Cancel

11. If you want to print a test page, reboot Windows 2000, select this printer, and click on **Print Test Page**.



13

Setting up Multiplexor Access

We describe here the steps for configuring Moxa CN2610 as a Multiplexor and De-Multiplexor. Using the Multiplexor/De-Multiplexor applications requires two CN2610s, one attached to a host with a multiport serial board and several serial lines, and the other connected to external devices. In this way, the original host can use a TCP/IP connection to control serial devices from a remote location.

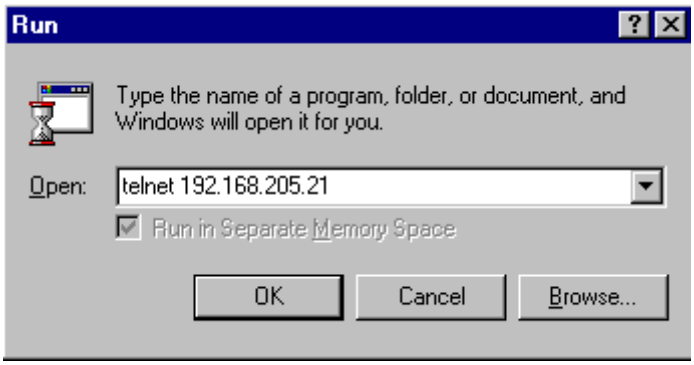
The following topics are covered in this chapter:

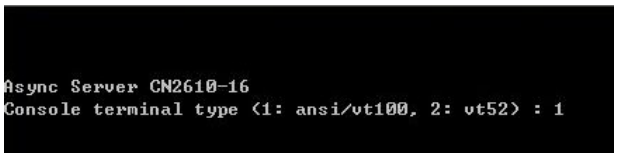
- **Configuring Port Operation Mode – Port Menu [Mode]**
  - RTELNET Mode
  - TERM_BIN Mode
- **Configuring Port Connection Setting – Port Menu [Line]**
- **Save**
- **Restart**

Configuring Port Operation Mode – Port Menu [Mode]

In **Port Menu [Mode]**, you can set up the terminal access application, and also set **Multiplexor** and **De-Multiplexor** modes.

1. Enter CN2610's **MAIN MENU**. Use either Telnet from a network terminal, or connect directly to CN2610 with a console terminal. Choose **ansi/vt100** and then press **Enter**. Refer to Chapter 2 if you have trouble entering **MAIN MENU**.

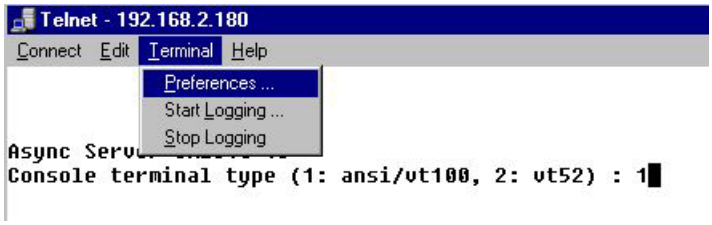


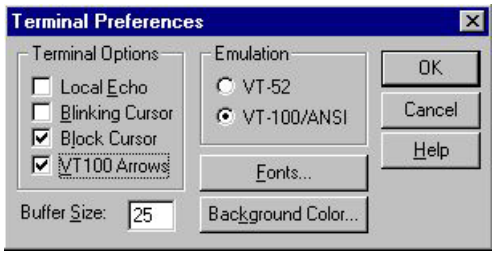


2. Below we show CN2610's **MAIN MENU**. Familiarize yourself with the cursor movement functions before we start.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

If you have problems using the arrow keys to move the cursor in Windows 9x or NT environment, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.

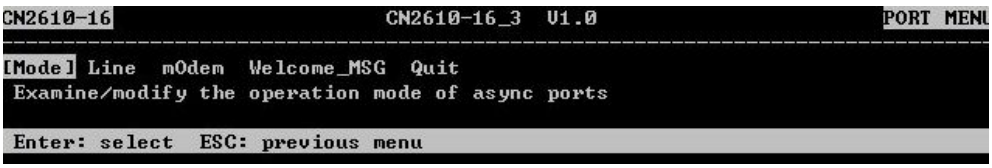




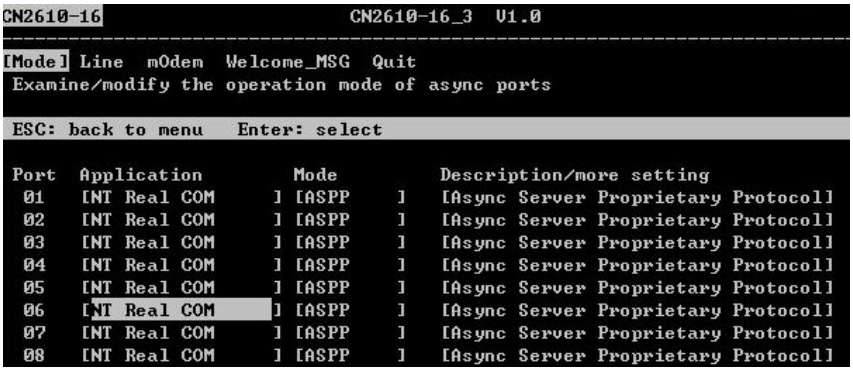
3. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server [Port] seTting sAve Utility Restart Exit
Examine/modify async server ports configuration
Enter: select ESC: previous menu

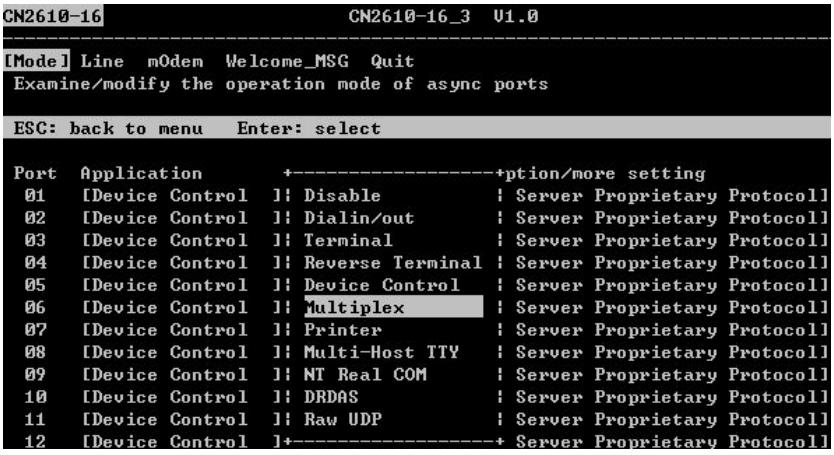
4. In **PORT MENU**, select **Mode**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
Enter: select ESC: previous menu

5. In **Mode**, use the arrow keys to move the cursor to the application corresponding to serial ports. Here we use Port 6 as an example.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
02 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
03 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
04 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
05 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
06 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
07 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]
08 [NT Real COM] [ASPP] [Async Server Proprietary Protocol]

6. Press **Enter** to open application window. Use up/down arrow keys to select **Multiplex**, and then press **Enter** to confirm.

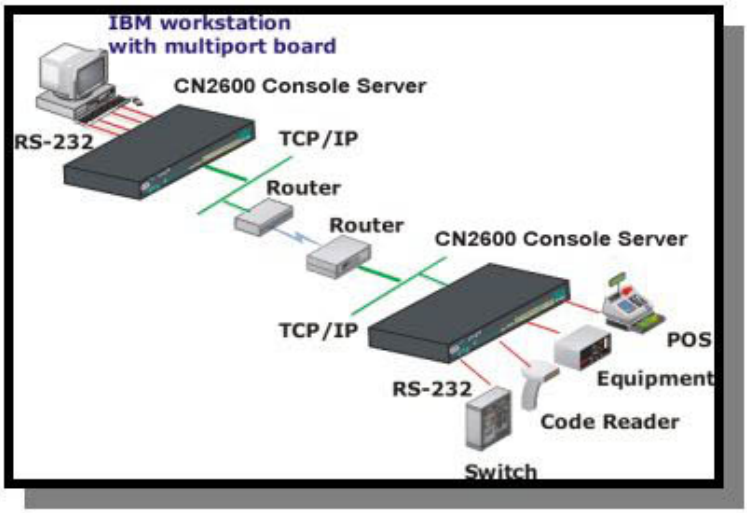

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application +----------+ption/more setting
01 [Device Control]| Disable | Server Proprietary Protocol]
02 [Device Control]| Dialin/out | Server Proprietary Protocol]
03 [Device Control]| Terminal | Server Proprietary Protocol]
04 [Device Control]| Reverse Terminal | Server Proprietary Protocol]
05 [Device Control]| Device Control | Server Proprietary Protocol]
06 [Device Control]| Multiplex | Server Proprietary Protocol]
07 [Device Control]| Printer | Server Proprietary Protocol]
08 [Device Control]| Multi-Host TTY | Server Proprietary Protocol]
09 [Device Control]| NT Real COM | Server Proprietary Protocol]
10 [Device Control]| DRDAS | Server Proprietary Protocol]
11 [Device Control]| Raw UDP | Server Proprietary Protocol]
12 [Device Control]+----------+ Server Proprietary Protocol]

7. Repeat Step 6 to configure port settings. For example, you can follow the steps described below to configure Port 1 to Port 16 for **Multiplex** application.

```
CN2610-16                        CN2610-16_3  V1.0
------------------------------------------------------------------------------
[Mode] Line  mOdem  Welcome_MSG  Quit
 Examine/modify the operation mode of async ports

 ESC: back to menu   Enter: select

 Port  Application        Mode          Description/more setting
  01   [Multiplex       ] [RTELNET ]   [Reverse Telnet mode              ]
  02   [Multiplex       ] [RTELNET ]   [Reverse Telnet mode              ]
  03   [Multiplex       ] [RTELNET ]   [Reverse Telnet mode              ]
  04   [Multiplex       ] [RTELNET ]   [Reverse Telnet mode              ]
  05   [Multiplex       ] [RTELNET ]   [Reverse Telnet mode              ]
  06   [Multiplex       ] [RTELNET ]   [Reverse Telnet mode              ]
  07   [Multiplex       ] [RTELNET ]   [Reverse Telnet mode              ]
  08   [Multiplex       ] [RTELNET ]   [Reverse Telnet mode              ]
```

8. Repeat the previous step for the 2nd CN2610. Select **Application** type for all ports as **Multiplex** but with **RTELNET** mode.

NOTE After setting up Multiplex ports, define RTELNET modes for the CN2610 that represents the serial host and TERM_BIN modes for the other CN2610.



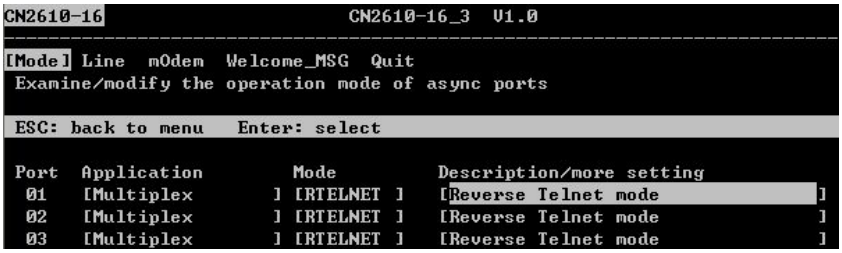
RTelnet Mode

Reverse Telnet, or RTELNET, supports the Telnet program used by Ethernet hosts to login to serial hosts. Ethernet hosts recognize serial ports by the specified source IP address, or by the TCP port number followed by CN2610's IP address.

1. Move the cursor to the **Mode** column, and then press **Enter** to open the setting window.
2. Select **RTELNET**.

```
CN2610-16                        CN2610-16_3  V1.0
------------------------------------------------------------------------------
[Mode] Line  mOdem  Welcome_MSG  Quit
 Examine/modify the operation mode of async ports

 ESC: back to menu   Enter: select
                                 +-----------+
 Port  Application        Mode   | RTELNET   |on/more setting
  01   [Multiplex       ] [RTELNET ]| TERM_BIN |Telnet mode              ]
  02   [Multiplex       ] [RTELNET ]+-----------+Telnet mode              ]
  03   [Multiplex       ] [RTELNET ]   [Reverse Telnet mode              ]
  04   [Multiplex       ] [RTELNET ]   [Reverse Telnet mode              ]
```

3. Move the cursor to **Description/more Setting** column, and then press **Enter** to open the setting window.


CN2610-16
CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Multiplex] [RTELNET] [Reverse Telnet mode]
02 [Multiplex] [RTELNET] [Reverse Telnet mode]
03 [Multiplex] [RTELNET] [Reverse Telnet mode]

TCP port : [4003]
Source IP address : [ ]
Destination IP addr : [ ]
Inactivity time : [0] minutes
Map keys <CR-LF> to : [CR-LF]
Authentication type : [none]
TCP alive check time: [0] minutes

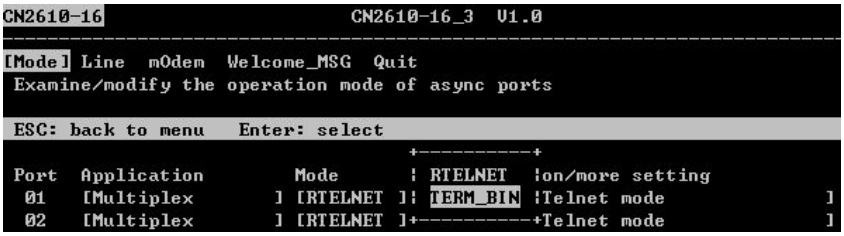
Setting	Value	Notes	Necessity
TCP port	number	Each of CN2610's serial ports is mapped to a TCP port. To avoid conflicts with TCP ports, set port numbers to 4001 for port1, 4002 for port2, etc. (like the default values).	Optional
Source IP address	IP address for the port	Specify an IP address for this port for application needs. If left blank, CN2610 will specify its own IP address, so you will need to set different TCP port numbers to avoid conflicts.	Optional
Destination IP addr	IP address	Assign a host IP address on the LAN for exclusive port access. If left blank, all hosts on the network will have access to this port.	Optional
Map Keys <CR-LF> to	CR/LF/CR-LF	When you enter <CR-LF> string, CN2610 will determine whether to send <CR>, <LF>, or <CR-LF>.	Optional
Inactivity time	0-99 minutes	Idle time setting for auto-disconnection. 0 min means no disconnection.	Optional
Authentication type	None/local /server	None: no certification needed. Local: Check the ID according to the User_table in SERVER MENU. Server: Check ID according to the external RADIUS server. Refer to Appendix B for RADIUS installation.	Optional
TCP alive check time	0-99 minutes	Specify the time slice for checking whether the TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection.	Optional

4. Repeat the steps above to set all RTELNET ports.
5. Press **Esc** to return to **PORT MENU**.

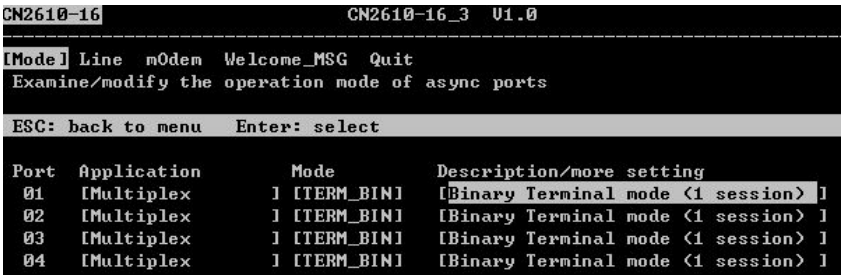
TERM_BIN Mode

Terminal Binary, or TERM_BIN mode, supports automatic link to Ethernet hosts for Terminal or Telnet users. It redirects telnet requests to the specified Ethernet host. Below we describe how to set auto-link host and login ID information. Auto-linking one TERM_BIN port to a port in RTELNET mode provides a transparent link through the network.

1. Move the cursor to the **Mode** column of the corresponding port, and then press **Enter** to see two modes for **Multiplex** applications.
2. Select **TERM_BIN**.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode RTELNET on/more setting
01 [Multiplex] [RTELNET] TERM_BIN Telnet mode
02 [Multiplex] [RTELNET] Telnet mode

3. Move cursor to the **Description/more setting** column, and then press **Enter** to open the setting window.


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Multiplex] [TERM_BIN] [Binary Terminal mode (1 session)]
02 [Multiplex] [TERM_BIN] [Binary Terminal mode (1 session)]
03 [Multiplex] [TERM_BIN] [Binary Terminal mode (1 session)]
04 [Multiplex] [TERM_BIN] [Binary Terminal mode (1 session)]

4. **TERM_BIN Description/More Setting** window. Type in the same entries shown to the right.

Quit key : [^E]
Auto-link protocol : [none]
Telnet TCP port : [23]
Primary host IP : [ ]
Link by input IP : [Disable]
Secondary host IP : [ ]
Auto-login prompt : [ogin:]
Password prompt : [assword:]
Login user name : [ ]
Login password : [ ]
Terminal type : [ansi]
Inactivity time : [0] minutes
Authentication type : [none]
TCP alive check time: [0] minutes

Setting	Value	Notes	Necessity
Quit Key	^E	Defines the Quit key used to disconnect the link between the current terminal session and the remote host. It may be left blank for binary communication.	Optional
Auto-link protocol	None/Telnet/ Rlogin	**[None]** Do not connect to host automatically. **[Telnet]** Connects to host automatically with Telnet **[Rlogin]** Connects to host automatically with Rlogin	Optional
Telnet TCP port	23	Enter a number or leave the space blank. If not specified, a default port 23 is used. If you	Optional

		want to use Telnet without a TCP port number, then set this option to 23.	
Primary host IP	IP address or the name defined in the [Host] table	If specified, it designates a 'permanent' host to which the terminal will always be connected.	Optional
Link by input IP	Enable/Disable	For users to enter IP address manually for connection	Optional
Secondary host IP	IP address or the name defined in the [Host] table.	If specified, it designates a secondary 'permanent' host to which the terminal will be connected.	Optional
Auto-login prompt	ogin:	Send ID information when receiving this prompt. Since some prompts use "Login", others use "login", the prompt detection is defined as "ogin:".	Optional
Password prompt	assword:	Send Password information when receiving this prompt. Since some prompts use "Password", others use "password", the prompt detection is defined as "assword:".	Optional
Login user name	ID	ID information	Optional
Login password	Password	Password information	Optional
Terminal type	Ansi	Terminal type for outgoing connection	Optional
Inactivity time	0-99 minutes	Idle time setting for auto-disconnection 0 min means no disconnection	Optional
Authentication type	None/local/server	**None:** No authentication is required. **Local:** Check ID according to **"User_table"** in "**SERVER MENU"**. You have to set user's information later in this chapter. **Server:** Check ID according to external RADIUS Server. Refer to Appendix B for RADIUS setup.	Optional
TCP alive check time	0-99 minutes	Specify the time slice for checking whether TCP connection is alive. If no response, CN2610 will reset the port and disconnect the original connection	Optional

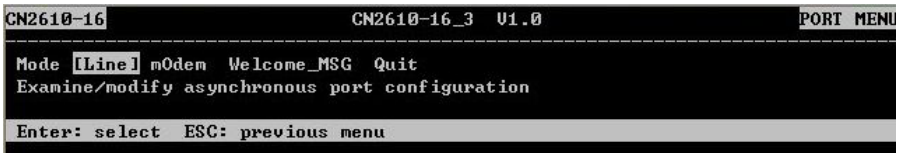
5. Repeat the steps above to set all **TERM_BIN** ports.
6. Press **Esc** to return to **PORT MENU**.

Configuring Port Setting – Port Menu [Line]

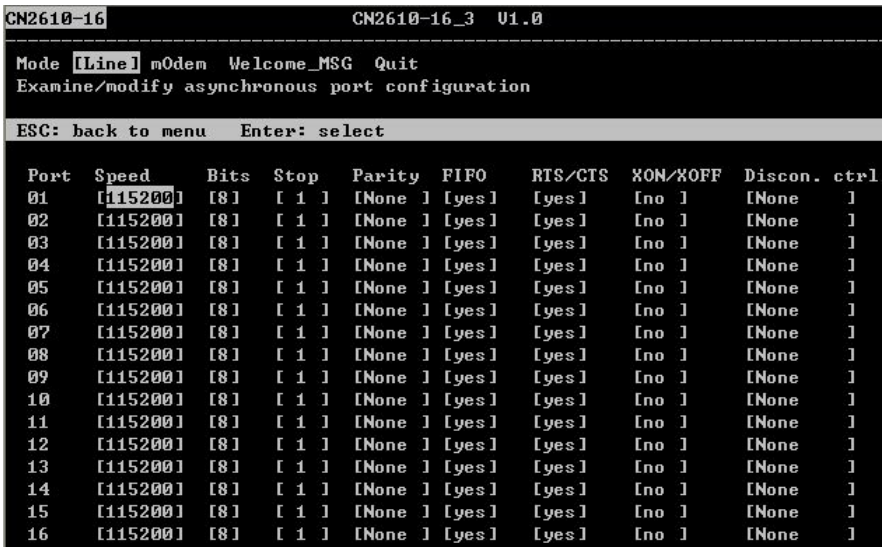
In **PORT MENU [Line]**, you can set line settings for the particular type of device being used.

1. In **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.

2. In **PORT MENU**, select **Line**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 PORT MENU
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
Enter: select ESC: previous menu

3. Specify settings.

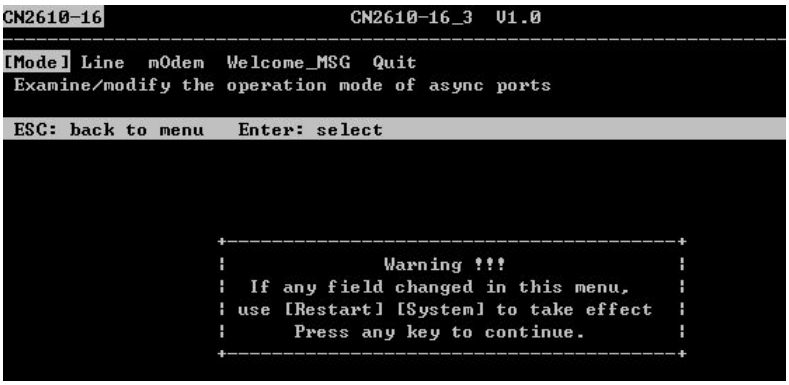

CN2610-16 CN2610-16_3 V1.0
Mode [Line] mOdem Welcome_MSG Quit
Examine/modify asynchronous port configuration
ESC: back to menu Enter: select
Port Speed Bits Stop Parity FIFO RTS/CTS XON/XOFF Discon. ctrl
01 [115200] [8] [1] [None] [yes] [yes] [no] [None]
02 [115200] [8] [1] [None] [yes] [yes] [no] [None]
03 [115200] [8] [1] [None] [yes] [yes] [no] [None]
04 [115200] [8] [1] [None] [yes] [yes] [no] [None]
05 [115200] [8] [1] [None] [yes] [yes] [no] [None]
06 [115200] [8] [1] [None] [yes] [yes] [no] [None]
07 [115200] [8] [1] [None] [yes] [yes] [no] [None]
08 [115200] [8] [1] [None] [yes] [yes] [no] [None]
09 [115200] [8] [1] [None] [yes] [yes] [no] [None]
10 [115200] [8] [1] [None] [yes] [yes] [no] [None]
11 [115200] [8] [1] [None] [yes] [yes] [no] [None]
12 [115200] [8] [1] [None] [yes] [yes] [no] [None]
13 [115200] [8] [1] [None] [yes] [yes] [no] [None]
14 [115200] [8] [1] [None] [yes] [yes] [no] [None]
15 [115200] [8] [1] [None] [yes] [yes] [no] [None]
16 [115200] [8] [1] [None] [yes] [yes] [no] [None]

Setting	Value	Notes
Speed	50 – 230.4 Kbps	Transmission speed
Bits	5/6/7/8	Data bit
Stop	1/1.5/2	Stop bit
Parity	None/Even/Odd/Mark/Space	Parity check
FIFO	Yes/No	FIFO setting. Default is Yes
RTS/CTS	Yes/No	Hardware flow control
XON/XOFF	Yes/No	Software flow control
Discon. Ctrl	None/DSR off/DCD off	Inactive for these modes

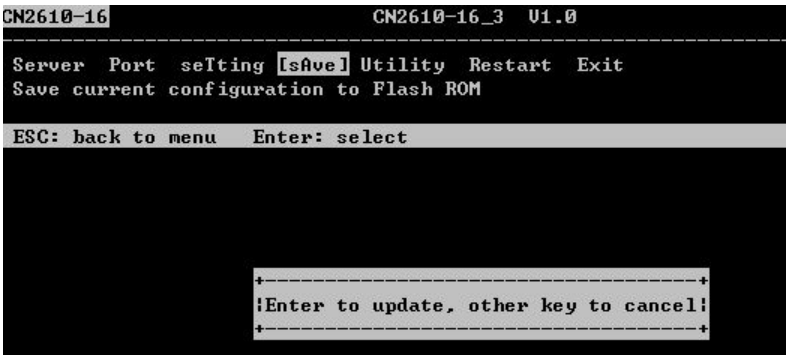
4. Repeat the above steps to set all lines.
5. Press **Esc** to return to **PORT MENU**.

Save

1. Press **Y** to save previous settings when exiting **PORT MENU**.

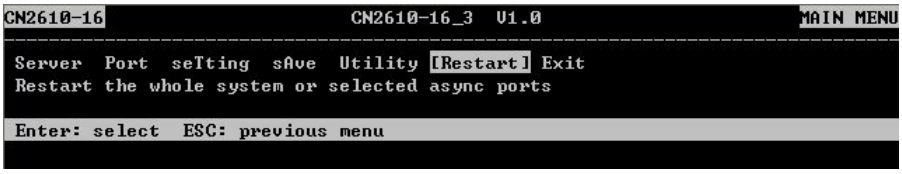

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Warning !!!
If any field changed in this menu,
use [Restart] [System] to take effect
Press any key to continue.

2. You may also save later. In **MAIN MENU**, select **sAve** to save all changed settings, and then press **Enter** to confirm.


CN2610-16 CN2610-16_3 V1.0
Server Port seTting [sAve] Utility Restart Exit
Save current configuration to Flash ROM
ESC: back to menu Enter: select
Enter to update, other key to cancel!

Restart

1. Return to **MAIN MENU** and select **Restart**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port seTting sAve Utility [Restart] Exit
Restart the whole system or selected async ports
Enter: select ESC: previous menu

2. Select **System**, and then press **Enter** to continue.

CN2610-16 CN2610-16_3 V1.0
[System] Port Quit
Restart the Async Server
ESC: back to menu Enter: select
Warning !!!
Restart system will disconnect all ports and clear all status value
Enter: continue ESC: cancel

3. The system will restart and the Telnet/Console session will terminate. Enter **MAIN MENU** again to check whether the settings have been changed.

14

Setting up Routing

Routing is the main process used by Internet hosts to deliver packets. The Internet uses a hop-by-hop routing model, which means that each host or router that handles a packet examines the Destination Address in the IP header, computes the next hop that will bring the packet one step closer to its destination, and then delivers the packet to the next hop, where the process is repeated. Two things are needed to make this work.
(1) Routing tables must match destination addresses with next hops, and (2) routing protocols must determine the contents of these tables.

CN2610 provides easy-to-use routing functions, supporting both static routing tables and dynamic RIP1/RIP2 routing protocols. This chapter illustrates how to configure static routing tables and dynamic RIP1/RIP2 protocols. A few routing examples are also given to illustrate some basic routing concepts.

The following topics are covered in this chapter:

- **Configuring Dynamic RIP – Server [Adv.]**
  - What is RIP?
  - Configuring RIP
- **Configuring Static Routing Table – SERVER [Route_table]**
  - Configuring Routing Table
  - Static Routing Examples
- **Save**
- **Restart**

Configuring Dynamic RIP – SERVER [Adv.]

What is RIP?

RIP (Routing Information Protocol) is a widely used protocol for managing routing information within a self-contained network, such as a corporate LAN (Local Area Network) or an interconnected group of such LANs.

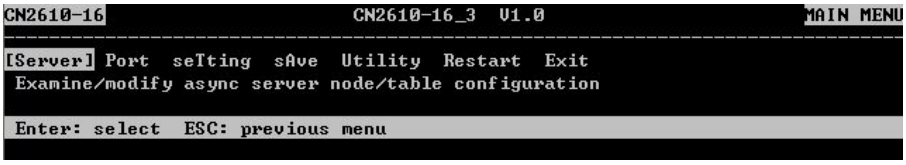
Using RIP, a gateway host with a router sends its entire routing table, which lists all the other hosts it knows about, to its closest neighbor host every 30 seconds. The neighbor host in turn will pass this information on to its closest neighbor, and so on, until all hosts within the network have the same routing path knowledge. This state is known as network convergence. RIP uses a hop count as a way of determining network distance. (Other protocols use more sophisticated algorithms that also include timing.) After receiving a packet headed for a specific destination, a network host with a router uses the routing table information to determine the next host to route the packet to.

RIP is considered an effective solution for small homogeneous networks. For larger, more complicated networks, transmitting the entire routing table every 30 seconds can bog down the network with a lot of extra traffic.

RIP 2 is an extension of RIP. Its purpose is to expand the amount of useful information contained in RIP packets, and to add security elements. RIP version 2 recently became the standard version of RIP, and the original RIP is no longer in use.

Configuring RIP

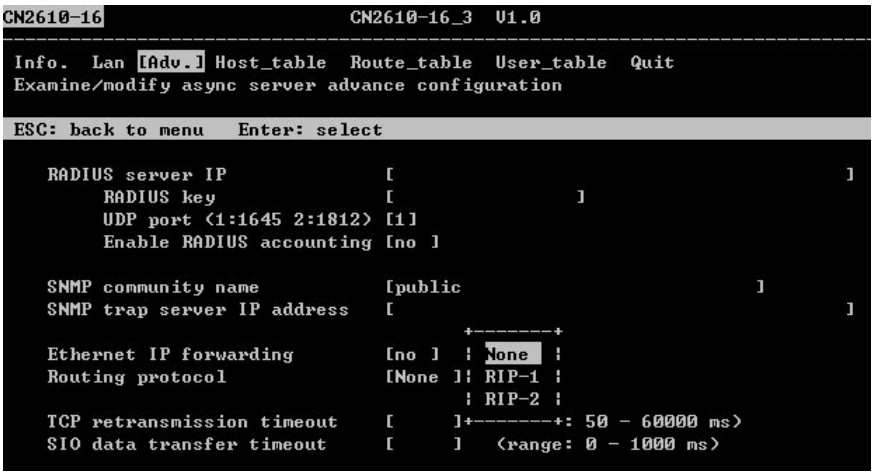
1. In the **MAIN MENU**, select **Server**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
[Server] Port seTting sAve Utility Restart Exit
Examine/modify async server node/table configuration
Enter: select ESC: previous menu

2. In **SERVER MENU**, select **Adv**., and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 SERVER MENU
Info. Lan [Adv.] Host_table Route_table User_table Quit
Examine/modify async server advance configuration
Enter: select ESC: previous menu

3. Use the Up/Down arrow keys to move the cursor to **Routing protocol**. Press **Enter** to see the options. Select **RIP-1** or **RIP-2** for **Routing protocol**. The RIP setting is only for sending packets. For receiving packets, CN2610 supports both RIP-1 and RIP-2.


CN2610-16 CN2610-16_3 V1.0
Info. Lan [Adv.] Host_table Route_table User_table Quit
Examine/modify async server advance configuration
ESC: back to menu Enter: select
RADIUS server IP [ ]
RADIUS key [ ]
UDP port (1:1645 2:1812) [1]
Enable RADIUS accounting [no]
SNMP community name [public]
SNMP trap server IP address [ ]
Ethernet IP forwarding [no]
Routing protocol [None]
None
RIP-1
RIP-2
TCP retransmission timeout [ ]: 50 - 60000 ms)
SIO data transfer timeout [ ] (range: 0 - 1000 ms)

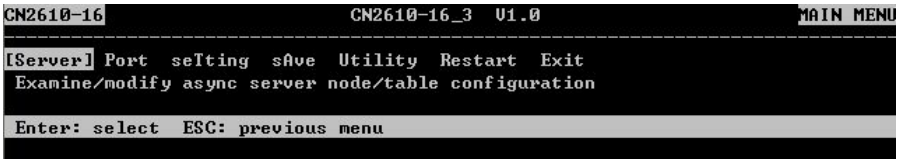
4. Press **Esc** to return to **MAIN MENU**.

Configuring Static Routing Table – SERVER [Route_table]

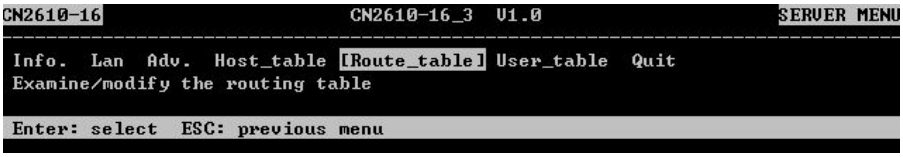
Although RIP-1 and RIP-2 periodically update routing tables between different routers, you still need to add routing entries in the routing table for routes only directed to you.

Configuring Routing Table

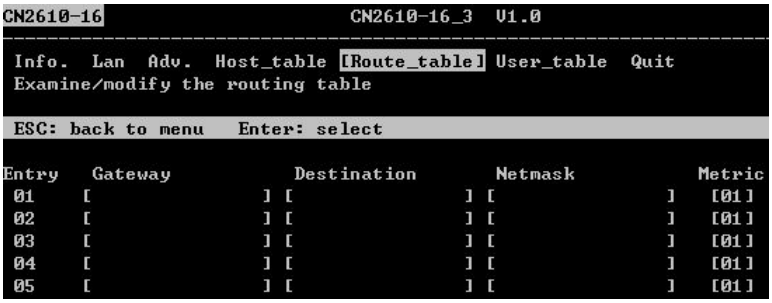
1. In **MAIN MENU**, select **Server**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
[Server] Port seTting sAve Utility Restart Exit
Examine/modify async server node/table configuration
Enter: select ESC: previous menu

2. In **SERVER MENU**, select **Route_table** and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 SERVER MENU
Info. Lan Adv. Host_table [Route_table] User_table Quit
Examine/modify the routing table
Enter: select ESC: previous menu

3. Use the **Tab** and arrow keys to move the cursor.

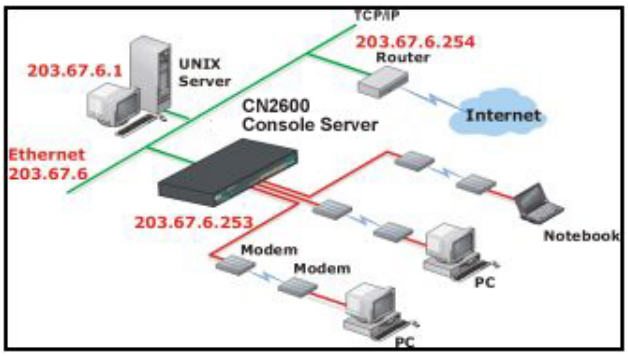

CN2610-16 CN2610-16_3 V1.0
Info. Lan Adv. Host_table [Route_table] User_table Quit
Examine/modify the routing table
ESC: back to menu Enter: select
Entry Gateway Destination Netmask Metric
01 [ ] [ ] [ ] [01]
02 [ ] [ ] [ ] [01]
03 [ ] [ ] [ ] [01]
04 [ ] [ ] [ ] [01]
05 [ ] [ ] [ ] [01]

Entry: Max. of 32 entries are allowed in the table.
Gateway: IP address of next-hop router.
Destination: Host IP address or network address of the route's destination.
Netmask: Destination network's Netmask pattern.
Metric: Number of hops from source to destination. Ranges from 1 to 15.

4. Press **Esc** to return to **MAIN MENU**.

Static Routing Examples

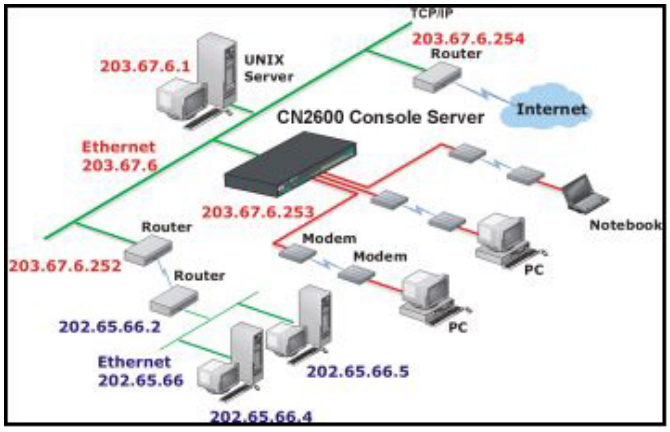
Configuring Routes to the Internet



The Dial-up PC/notebook sends a request to Internet host 192.48.96.9, which is not in the local network 203.67.6. This causes CN2610 to act as a router and send the datagram to the default next-hop router 203.67.6.254. In this case we should input the default gateway IP address as 203.67.6.254 for any destination beyond the local network 203.67.6.

```
CN2610-16                    CN2610-16_3  V1.0
-------------------------------------------------------------------------------
 Info.  Lan  Adv.  Host_table [Route_table] User_table  Quit
 Examine/modify the routing table

 ESC: back to menu   Enter: select

Entry   Gateway           Destination       Netmask           Metric
 01    [203.67.6.254   ] [0.0.0.0        ] [0.0.0.0        ]  [01]
 02    [               ] [               ] [               ]  [01]
 03    [               ] [               ] [               ]  [01]
```

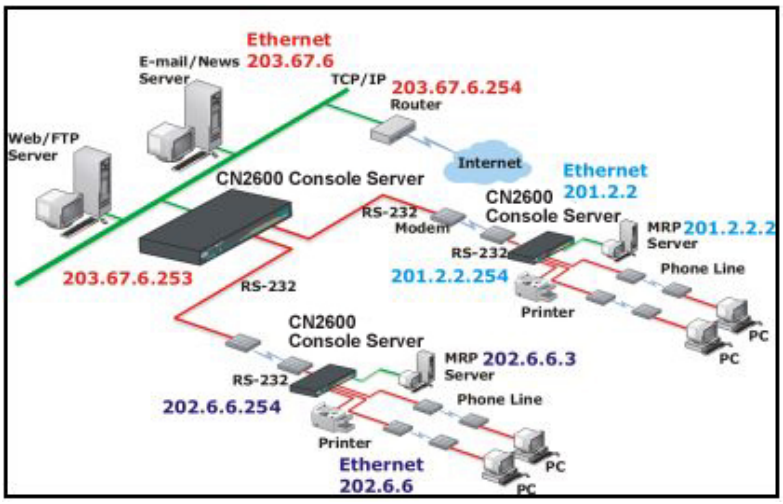
Configuring Routes to the Internet and Intranet



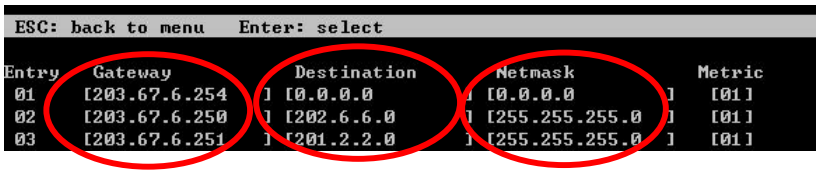
Besides sending requests to the Internet, Dial-up users can make requests to Intranet host 202.65.66.5, which is also outside network 203.67.6, but is in 202.65.66. Add a route entry for the next-hop router, 203.67.6.252, for delivering requests to network 202.65.66. The metric hop in this case is 2 route hops.

```
CN2610-16                    CN2610-16_3  V1.0
-------------------------------------------------------------------------------
 Info.  Lan  Adv.  Host_table [Route_table] User_table  Quit
 Examine/modify the routing table

 ESC: back to menu   Enter: select

Entry   Gateway           Destination       Netmask           Metric
 01    [203.67.6.254   ] [0.0.0.0        ] [0.0.0.0        ]  [01]
 02    [203.67.6.252   ] [203.65.66.0    ] [255.255.255.0  ]  [02]
 03    [               ] [               ] [               ]  [01]
```

Configuring Multiple-Point Routes



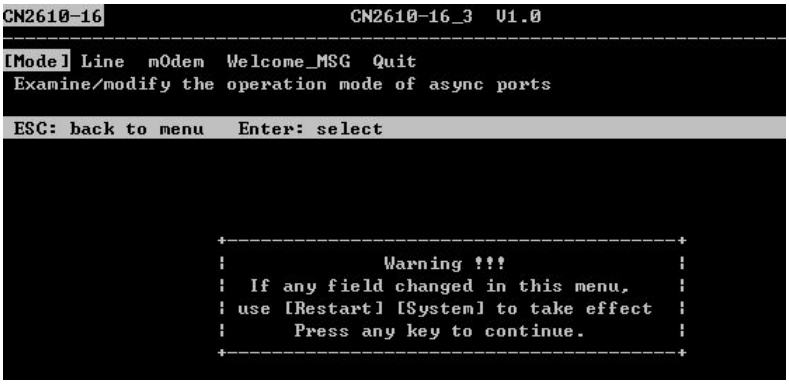
For multi-location enterprises, CN2610 can be placed in different branch offices and used as both a multi-point router and remote access server. When hosts send requests to hosts in another network, such as 202.6.6 or 201.2.2, CN2610 delivers the request to the remote end CN2610, 202.6.6.254 or 201.2.2.254, as the next-hop router. Meanwhile, requests to Internet hosts are still sent through router 203.67.6.254 as the next-hop router. For the serial port 202.6.6, the Source IP address has to be configured as 203.67.6.250. For the serial port 201.2.2, the Source IP address has to be configured as 203.67.6.249. There will be 3 routes at this time:



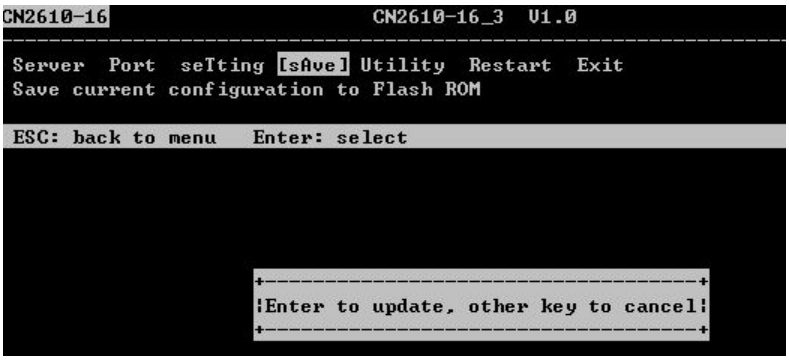
NOTE The IP address of the remote CN2610 has to be configured in **Destination IP addr**, in **port**, **mode**, **more setting**, in **PORT MENU**.

Save

1. Press **Y** to save previous settings when exiting **PORT MENU**.

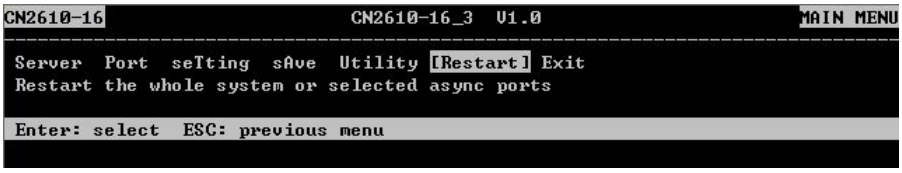

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Warning !!!
If any field changed in this menu,
use [Restart] [System] to take effect
Press any key to continue.

2. You may also save later. In **MAIN MENU**, select **sAve** to save all changed settings, and then press **Enter** to confirm.


CN2610-16 CN2610-16_3 V1.0
Server Port seTting [sAve] Utility Restart Exit
Save current configuration to Flash ROM
ESC: back to menu Enter: select
Enter to update, other key to cancel!

Restart

1. Return to **MAIN MENU** and select **Restart**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port seTting sAve Utility [Restart] Exit
Restart the whole system or selected async ports
Enter: select ESC: previous menu

2. Select **System**, and then press **Enter** to continue.

CN2610-16
CN2610-16_3 V1.0
[System] Port Quit
Restart the Async Server
ESC: back to menu Enter: select
Warning !!!
Restart system will disconnect all ports and clear all status value
Enter: continue ESC: cancel

3. The system will restart and the Telnet/Console session will terminate. Enter **MAIN MENU** again to check whether the settings have been changed.

15
Administrative Utility

In this chapter we discuss using CN2610 Administration Utility, including how to use the Ping function to see if a LAN host is still active, and how to get information with Monitor/Line, Monitor/Network, Monitor/Async, Monitor/Routing, and Monitor/PPP-Trace.

The following topics are covered in this chapter:

- **Utility – Ping**
- **Utility – Monitor**
  - Line
  - Network
  - Async
  - Routing
  - PPP-Trace
- **Utility – Diagnostic**
- **Utility – Upgrade**
  - Upgrade through Windows Utility
  - Console Terminal Upgrade
  - Remote RCP Upgrade
- **Setting – Export**
  - Console Terminal Export
  - Remote RCP Export
- **Setting – Import**
  - Console Terminal Import
  - Remote RCP Import
- **Setting – Default**

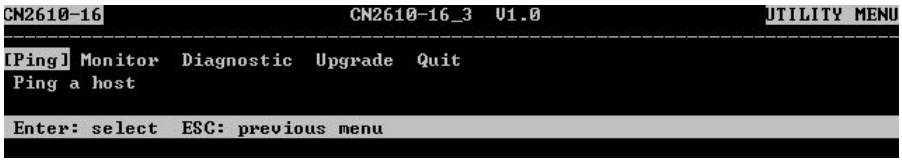
Utility – Ping

Ping is used to test network hardware connectivity and whether a network host is active.

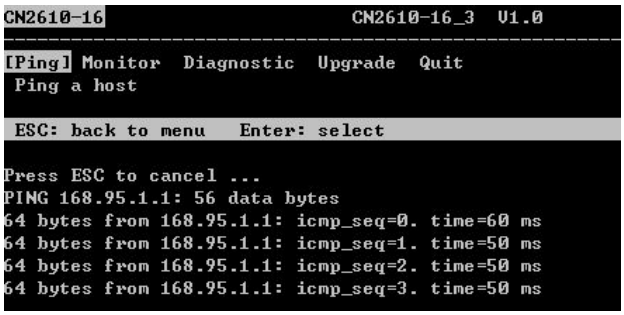
1. To enter **Utility** in **MAIN MENU**, use arrow keys to select **Utility,** and then press **Enter**.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port seTting sAve [Utility] Restart Exit
Async server utilities
Enter: select ESC: previous menu

2. In **UTILITY MENU** select **Ping**, and then press **Enter**.



3. Enter **target host IP address**.

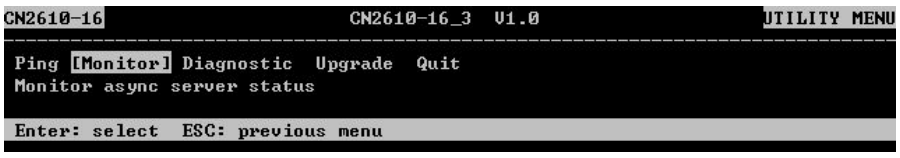

CN2610-16 CN2610-16_3 V1.0
[Ping] Monitor Diagnostic Upgrade Quit
Ping a host
ESC: back to menu Enter: select
Press ESC to cancel ...
PING 168.95.1.1: 56 data bytes
64 bytes from 168.95.1.1: icmp_seq=0. time=60 ms
64 bytes from 168.95.1.1: icmp_seq=1. time=50 ms
64 bytes from 168.95.1.1: icmp_seq=2. time=50 ms
64 bytes from 168.95.1.1: icmp_seq=3. time=50 ms

4. Press **Esc** to return to **Ping**.

Utility – Monitor

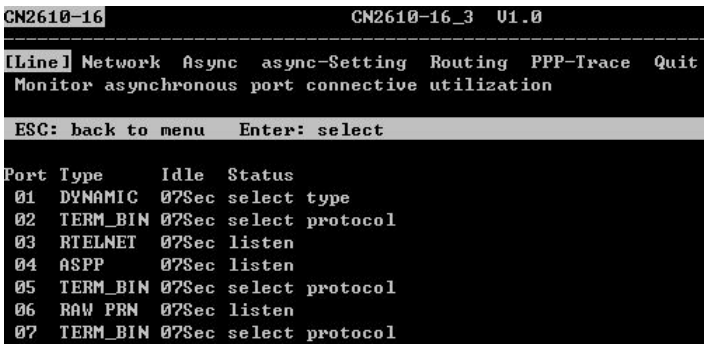
Monitor Utility includes serial line status, network status, serial transmission flow, routing, and PPP trace.

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port seTting sAve [Utility] Restart Exit
Async server utilities
Enter: select ESC: previous menu


CN2610-16 CN2610-16_3 V1.0 UTILITY MENU
Ping [Monitor] Diagnostic Upgrade Quit
Monitor async server status
Enter: select ESC: previous menu

Line

1. In **MONITOR MENU,** select **Line**, and then press **Enter**.

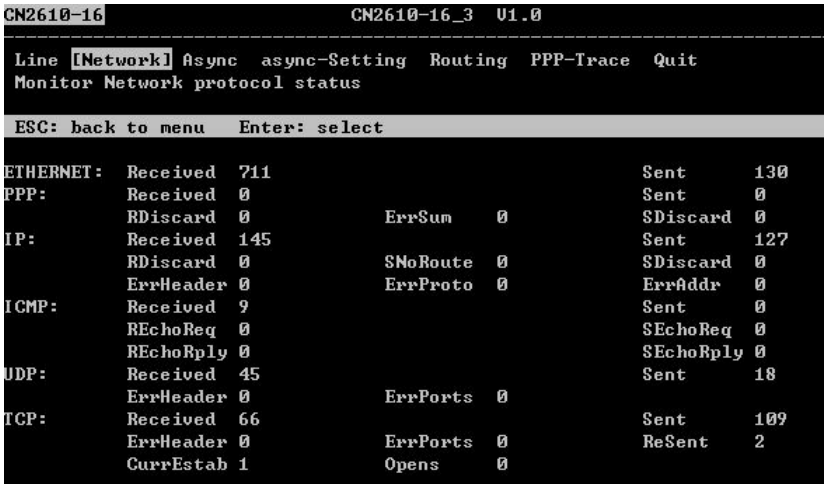

CN2610-16 CN2610-16_3 V1.0
[Line] Network Async async-Setting Routing PPP-Trace Quit
Monitor asynchronous port connective utilization
ESC: back to menu Enter: select
Port Type Idle Status
01 DYNAMIC 07Sec select type
02 TERM_BIN 07Sec select protocol
03 RTELNET 07Sec listen
04 ASPP 07Sec listen
05 TERM_BIN 07Sec select protocol
06 RAW PRN 07Sec listen
07 TERM_BIN 07Sec select protocol

Type - Port operation mode set in **Mode** in **PORT MENU**
Idle - Idle time for this port
Status -Current status of the port (If a host is connected to this port, then the host's IP address is displayed in this column.)

2. Press **Esc** to return to **Line**.

Network

1. In **MONITOR MENU,** select **Network,** and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0
Line [Network] Async async-Setting Routing PPP-Trace Quit
Monitor Network protocol status
ESC: back to menu Enter: select
ETHERNET: Received 711 Sent 130
PPP: Received 0 Sent 0
RDiscard 0 ErrSum 0 SDiscard 0
IP: Received 145 Sent 127
RDiscard 0 SNoRoute 0 SDiscard 0
ErrHeader 0 ErrProto 0 ErrAddr 0
ICMP: Received 9 Sent 0
REchoReq 0 SEchoReq 0
REchoRply 0 SEchoRply 0
UDP: Received 45 Sent 18
ErrHeader 0 ErrPorts 0
TCP: Received 66 Sent 109
ErrHeader 0 ErrPorts 0 ReSent 2
CurrEstab 1 Opens 0

Ethernet statistics
Received: Total packets of input datagram received from the Ethernet.
Sent: Total packets of output datagram delivered to the Ethernet.

PPP statistics
Received: Received PPP datagram packets.
RDiscard: Received but discarded PPP datagram packets.
ErrSum: Checksum error packets.
Sent: Sent PPP datagram packets.
SDiscard: Sent but discarded PPP datagram packets.

IP statistics
Received: Received IP datagram packets.
RDiscard: Received but discarded PPP datagram packets.
ErrHeader: Received but discarded datagram packets due to errors in IP headers.
SNoRoute: Received IP datagram packets for wrong route.
ErrProto: Locally addressed datagram packet received successfully but discarded for not matching one of TCP, UDP, ICMP protocols offered by CN2610.
Sent: Sent IP datagram packets.
SDiscard: Sent but discarded IP datagram packets.

ErrAddr: Sent datagram packet discarded for invalid destination IP address.

ICMP statistics
Received: Received packets of ICMP messages.
Sent: Sent packets of ICMP messages.
REchoReq: Received packets from remote Ping request.
REchoRply: Responding packets to remote Ping request.
SEchoReq: Received packets from local ping request.
SEchoRply: Responding packets to local ping request.

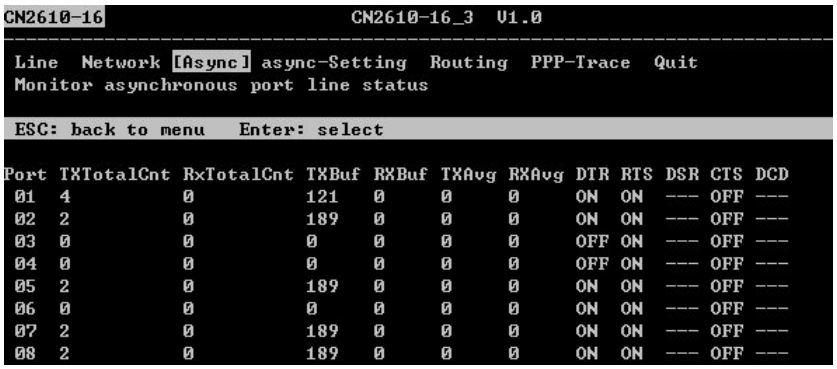
UDP statistics
Received: Received UDP datagram packets.
ErrPorts: Received UDP datagram packets with invalid destination port.
ErrHeader: Received UDP datagram packet with incorrect header.
Sent: Sent UDP datagram packets.

TCP statistics
Received: Total received packets of segments, including error packets.
ErrHeader: Error packets (e.g., bad TCP checksums).
CurrEstab: The counter of TCP connections for which the current state is either ESTABLISHED or CLOSE-WAIT.
Errorport: Received TCP datagram packets with invalid destination port.
Opens: TCP connections.
Sent: Total sent packets, including those on current connections.
ReSent: Retransmitted packets.

2. Press **Esc** to return to **Network**.

Async

1. In **MONITOR MENU,** select **Async**, and then press **Enter**.

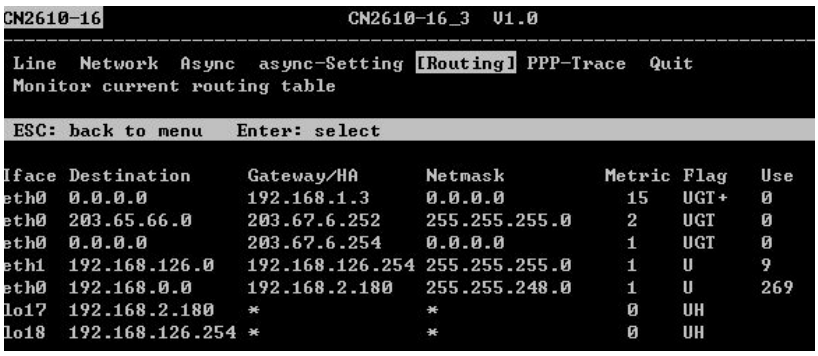

CN2610-16 CN2610-16_3 V1.0
Line Network [Async] async-Setting Routing PPP-Trace Quit
Monitor asynchronous port line status
ESC: back to menu Enter: select
Port TXTotalCnt RxTotalCnt TXBuf RXBuf TXAvg RXAvg DTR RTS DSR CTS DCD
01 4 0 121 0 0 0 ON ON --- OFF ---
02 2 0 189 0 0 0 ON ON --- OFF ---
03 0 0 0 0 0 0 OFF ON --- OFF ---
04 0 0 0 0 0 0 OFF ON --- OFF ---
05 2 0 189 0 0 0 ON ON --- OFF ---
06 0 0 0 0 0 0 ON ON --- OFF ---
07 2 0 189 0 0 0 ON ON --- OFF ---
08 2 0 189 0 0 0 ON ON --- OFF ---

TXTotalCnt: Total transmitted characters.
RXTotalCnt: Total received characters.
TXBuf: Queued data bytes in the transmitting raw buffer.
RXBuf: Received data bytes in the receiving raw buffer.
TXAvg: Current approx. characters per second transmit rate.
RXAvg: Current approx. characters per second receiving rate.
DTR: Current DTR status.
RTS: Current RTS status.
DSR: Current DSR status
CTS: Current CTS status.
DCD: Current DCD status.

2. Press **Esc** to return to **Async**.

Routing

1. In **MONITOR MENU,** select **Routing**, and then press **Enter**.



Iface: Name of the physical network interface.
Destination: Network or host that the router allows you to connect to.
Gateway: IP Address of the gateway you configured for this route. If you are directly connected, this is a local address. Otherwise, it is the address of the machine through which packets must be routed.
Netmask: Network pattern of the gateway.
Metric: Number of hops to the destination.
Flags: State of the route. Valid states are:

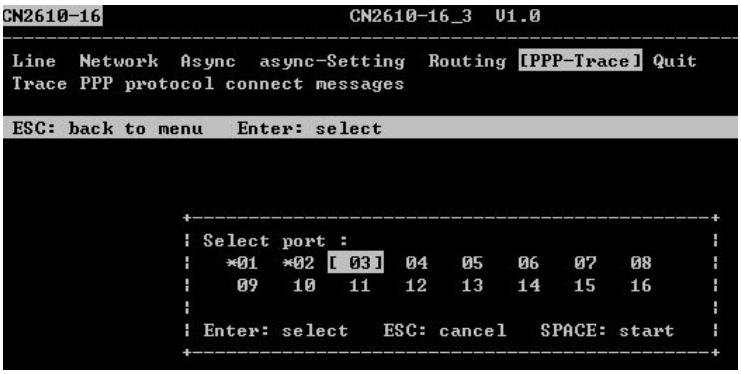
U	up
D	down
G	route to a gateway
H	route to a host
T	setting in route table
R	dynamic by RIP

Use: Correct number of packets being sent in this route.

2. Press **Esc** to return to **Routing**.

PPP-Trace

1. In **MONITOR MENU,** select **PPP-Trace**, and then press **Enter**.
2. Use the arrow keys to select the port you wish to trace, and then press **Enter** to select.


CN2610-16 CN2610-16_3 V1.0
Line Network Async async-Setting Routing [PPP-Trace] Quit
Trace PPP protocol connect messages
ESC: back to menu Enter: select
Select port :
*01 *02 [03] 04 05 06 07 08
09 10 11 12 13 14 15 16
Enter: select ESC: cancel SPACE: start

3. After selecting the ports that need monitoring, press **Space** to start.

CN2610-16 CN2610-16_3 V1.0
Line Network Async async-Setting Routing [PPP-Trace] Quit
Trace PPP protocol connect messages
ESC: back to menu Enter: select
TRACE PORTs: 01 02
P01 state: LCP Initial
P02 state: LCP Initial

PPP states for the selected ports are shown. LCP (Link Control Protocol), which is an essential part of the PPP link, is used for establishing, configuring, and testing the data link connection.

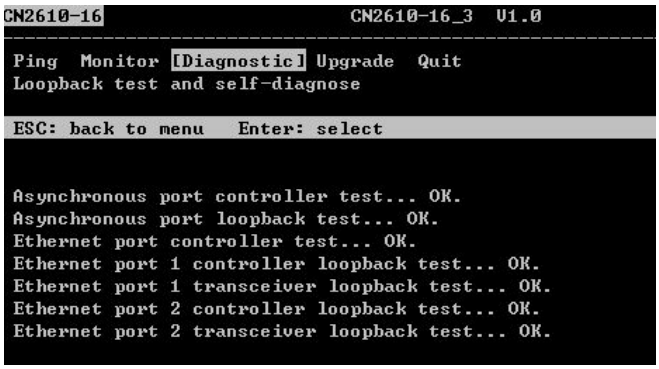
4. Press **Esc** to return to **PPP-Trace**.

Utility – Diagnostic

CN2610 Diagnostic Utility, which is used to test async ports, Ethernet controllers, and printer ports, contains the following functions.

- Async ports controller and internal loop-back test.
- Ethernet controller, internal and external loop-back tests.
- Printer port test.

1. In the **UTILITY** menu, use the arrow keys to select **Diagnostic**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0
Ping Monitor [Diagnostic] Upgrade Quit
Loopback test and self-diagnose
ESC: back to menu Enter: select
Asynchronous port controller test... OK.
Asynchronous port loopback test... OK.
Ethernet port controller test... OK.
Ethernet port 1 controller loopback test... OK.
Ethernet port 1 transceiver loopback test... OK.
Ethernet port 2 controller loopback test... OK.
Ethernet port 2 transceiver loopback test... OK.

If any of these tests fail, contact Moxa to request repair services.

2. Press **Esc** to restart the system.

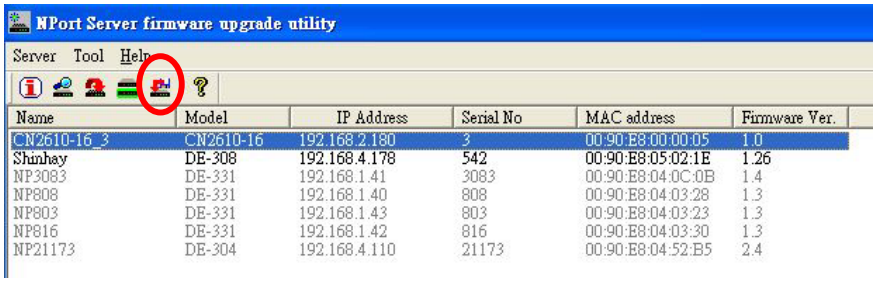
Utility – Upgrade

The operating system in CN2610 is kept in the Flash ROM. It can be upgraded using Windows Utility, from a locally connected CONSOLE Terminal using XMODEM protocol, or from a Unix host using RCP protocol.

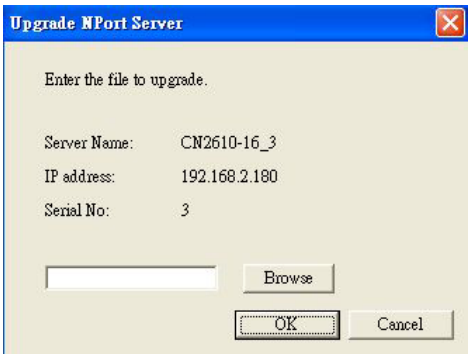
Upgrade through Windows Utility

A major function of Windows Utility is to upgrade firmware. It is simple to use when CN2610 is connected to a Windows network environment.

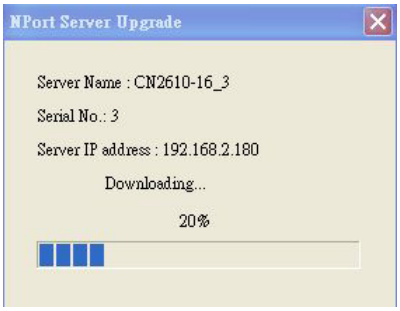
1. Run `Upgrade.exe` from the CN2610 CD. (\Software\driver\utility\upgrade.exe)



2. Select the CN2610 server by clicking the button on the toolbar. If the CN2610 server is at a remote site, use to add it to the list.



3. Specify the new firmware file used to upgrade.
4. Press **OK** to start.

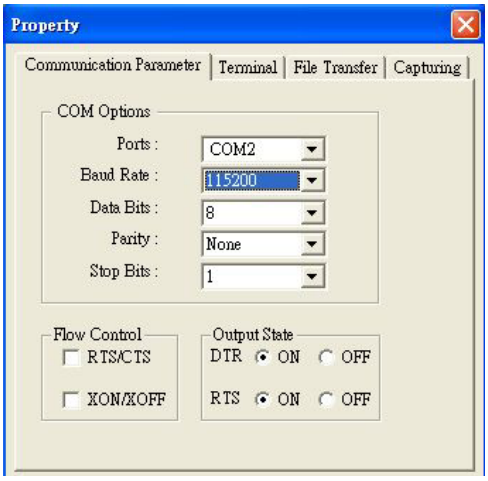


Console Terminal Upgrade

1. Run **Start→Programs→PComm Terminal Emulator**. (If you cannot find the software, install the **PComm Lite** file from the CN2610 CD, and then run the program.)

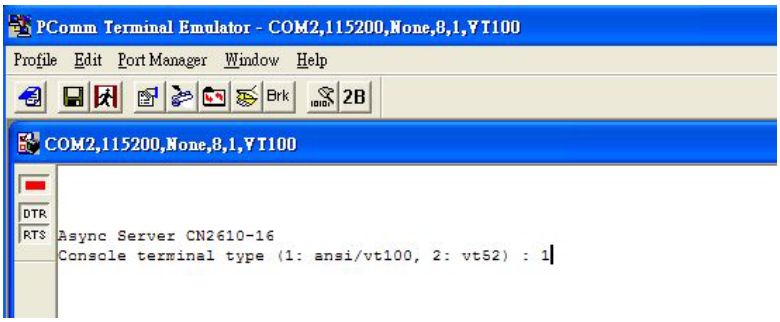
2. Use an RJ45-DB25 female cable to properly connect to the console port, and then turn on CN2610. Start the program PComm Terminal and then open a new connection.

3. In **Communication Parameter** select COM2 for **Ports**, **115200** for **Baud Rate**, **8** for **Data Bits**, **None** for **Parity**, and **1** for **Stop Bits**.



4. In **Terminal**, select **VT100** for **Terminal Type**, and then press **Enter** to confirm.

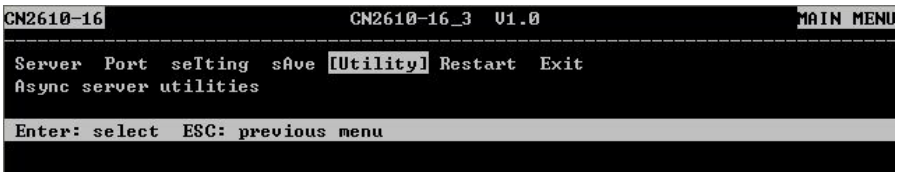
5. Type 1 to choose **ansi/VT100** terminal type, and then press **Enter** to enter **MAIN MENU**.



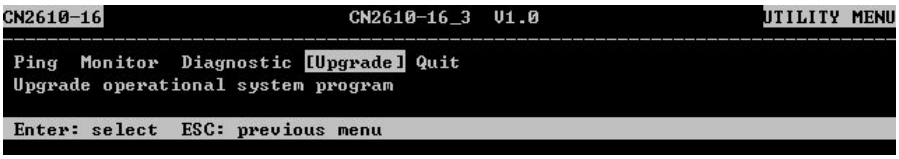
6. Below we show CN2610's **MAIN MENU**. Familiarize yourself with the cursor movement functions before we start.

	Key
Move	**[Up/Down/Left/Right]** Arrow Key or **[Tab]** Key
Enter to next menu	**[Enter]** Key
Back to previous menu	**[Esc]** Key
Fast Key	**Capital** letter of the word

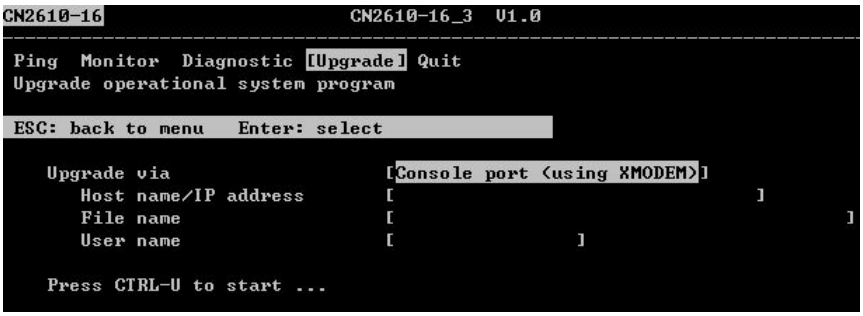
7. In **MAIN MENU** select **Utility**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port seTting sAve [Utility] Restart Exit
Async server utilities
Enter: select ESC: previous menu

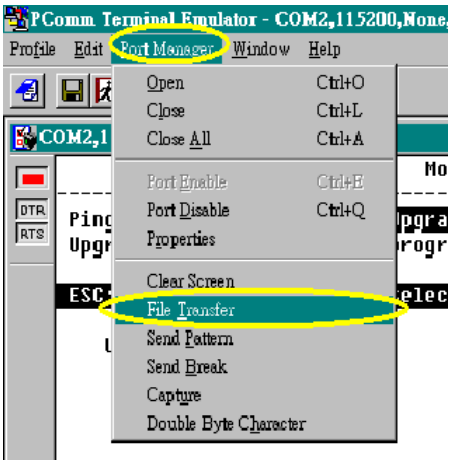
8. In **UTILITY MENU,** select **Upgrade**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 UTILITY MENU
Ping Monitor Diagnostic [Upgrade] Quit
Upgrade operational system program
Enter: select ESC: previous menu

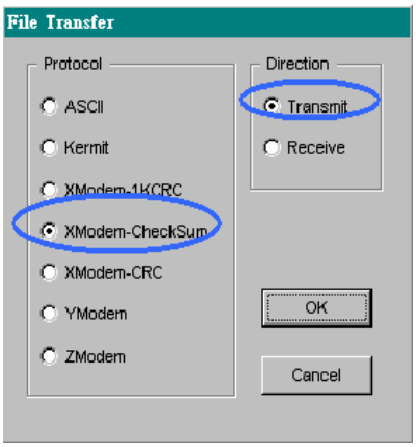
9. Select **Console port (using XMODEM)** for **Upgrade** type, and then press **Ctrl-U** to start.


CN2610-16
CN2610-16_3 V1.0
Ping Monitor Diagnostic [Upgrade] Quit
Upgrade operational system program
ESC: back to menu Enter: select
Upgrade via [Console port (using XMODEM)]
Host name/IP address [ ]
File name [ ]
User name [ ]
Press CTRL-U to start ...

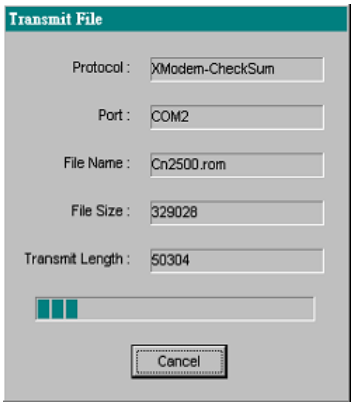
10. You will need to specify the file used for upgrading. Select **Port Manager→File Transfer** from the menu.



11. In the **File Transfer** window select **XModem-CheckSum** for **Protocol** and **Transmit** for **Direction**, and then click on **OK**, resulting in the file being sent to CN2610.



12. Locate the upgrade file, `CN2610.rom` for example. The specified file will then be transferred from the terminal to the CN2610.



13. CN2610 stores the new firmware in its Flash ROM, and then restarts the entire system. This completes the Upgrade process.

Remote RCP Upgrade

RCP (Remote Copy Program) is the Unix utility for copying files over the Ethernet. RCP allows transparent copying of files between hosts, without the need to enter passwords. This can be done using the security file `.rhosts`.

NOTE

The format of RCP is as follows: *`rcp from to`*
The *`from`* and *`to`* arguments can either be specified as local files or remote files. To specify a remote file, use the format: *`user@hostname:filename`*. If the remote login ID is identical to the local login ID, then *`user@`* can be omitted (i.e., only *`hostname:filename`* is required).

NOTE

The security file *`.rhosts`* is a plain text file that must reside in the local user's home directory, and must be owned by that user. This file identifies those users who are "equivalent" to the local user, and are given access without needing to enter a password.

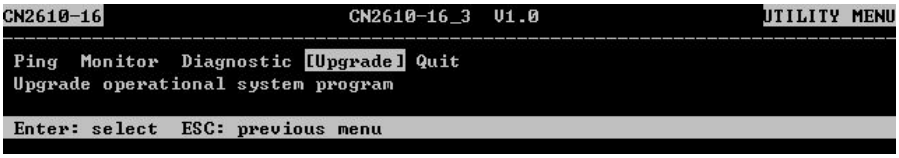
NOTE

The file must contain at least a host, and if the login ID is different on the remote host, the login ID as well. This sample *`.rhosts`* file is for the user *`john`* on the host *`sun`*. The following three accounts are considered "equivalent" accounts. The user has accounts on *`moxa1`* and *`moxa3`* with the same login ID, and has an account on *`moxa2`* as *`johnwu`*.

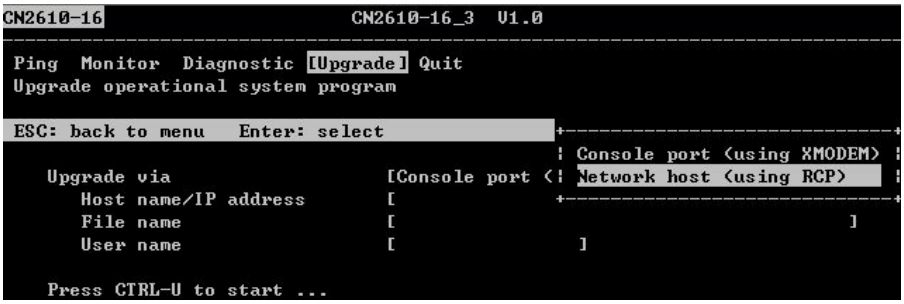
```
# This comment line is ignored by the operating system.
Moxa1.com.tw john
Moxa2.com.tw johnwu
Moxa3.com.tw john.
```

1. Login to your UNIX/LINUX host. For example, login to 203.67.8.22 as user "john".
2. Copy CN2610 firmware, e.g., "CN2610.rom", into the current directory.
3. Create a file named `.rhosts` in this directory. Enter CN2610's IP address, e.g., 192.168.205.21, in the `.rhosts` file, or enter CN2610's domain name if it's defined in your `/etc/hosts` file.
4. Telnet CN2610's IP address.

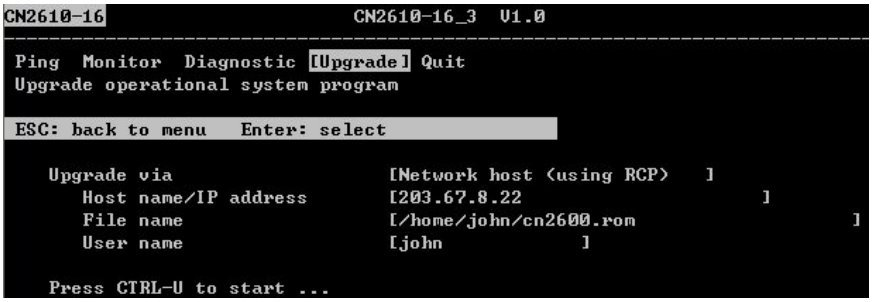
5. After entering CN2610's **MAIN MENU**, select **Utility→Upgrade**.


CN2610-16 CN2610-16_3 V1.0 UTILITY MENU
Ping Monitor Diagnostic [Upgrade] Quit
Upgrade operational system program
Enter: select ESC: previous menu

6. In the **Upgrade via** column, select **Network host (using RCP)**.


CN2610-16 CN2610-16_3 V1.0
Ping Monitor Diagnostic [Upgrade] Quit
Upgrade operational system program
ESC: back to menu Enter: select
Upgrade via [Console port (
Console port (using XMODEM)
Network host (using RCP)
Host name/IP address [
File name [
User name [
Press CTRL-U to start ...

7. In **Host name/IP address,** enter the IP address of the UNIX/LINUX host.
8. In **File name**, enter the CN2610 firmware file name in the UNIX/LINUX host.
9. In **User name,** enter the user name for logging into the UNIX/LINUX host.
10. Press **CTRL-U** to start.
11. After downloading, CN2610 will restart the system.


CN2610-16 CN2610-16_3 V1.0
Ping Monitor Diagnostic [Upgrade] Quit
Upgrade operational system program
ESC: back to menu Enter: select
Upgrade via [Network host (using RCP)
Host name/IP address [203.67.8.22
File name [/home/john/cn2600.rom
User name [john
Press CTRL-U to start ...

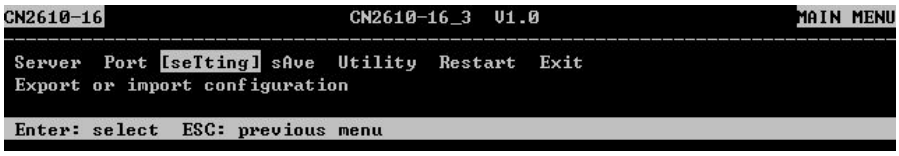
Setting – Export

Settings can be exported to a file as a backup, or to be used by another CN2610 with the same settings. There are two types of exported file settings, console terminal or remote RCP.

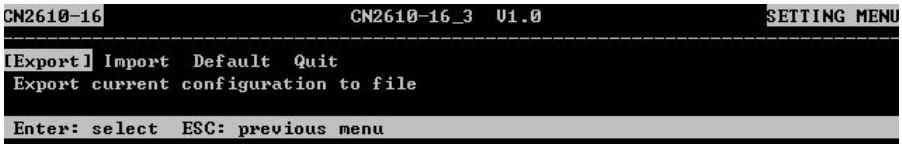
Console Terminal Export

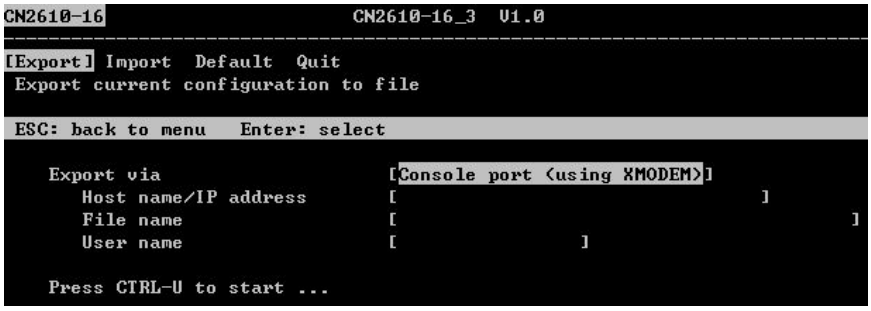
1. To enter **Setting** in **MAIN MENU**, use the arrow keys to select **seTting**, and then press **Enter**.
2. Run **Start→Programs→PComm Terminal Emulator**. Follow the steps earlier to enter **MAIN MENU**.

3. In **MAIN MENU** select **seTting**, and then press **Enter**.

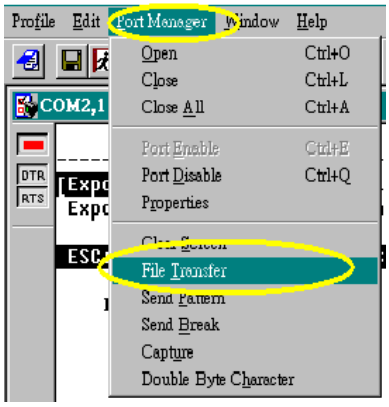

CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port [seTting] sAve Utility Restart Exit
Export or import configuration
Enter: select ESC: previous menu

4. In the **SETTING MENU** select **Export**, and then press **Enter**.

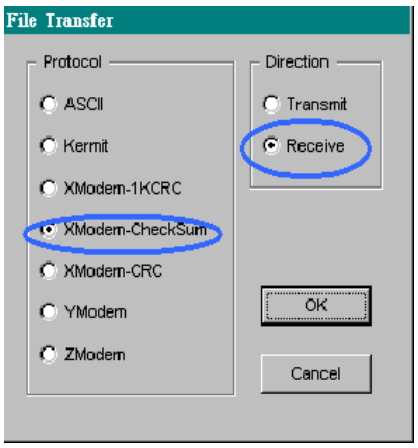

CN2610-16 CN2610-16_3 V1.0 SETTING MENU
[Export] Import Default Quit
Export current configuration to file
Enter: select ESC: previous menu


CN2610-16 CN2610-16_3 V1.0
[Export] Import Default Quit
Export current configuration to file
ESC: back to menu Enter: select
Export via [Console port (using XMODEM)]
Host name/IP address [ ]
File name [ ]
User name [ ]
Press CTRL-U to start ...

5. Select **Console port (using XMODEM)** for upgrade type, and then press **[Ctrl-U]** to start.
6. You will need to specify the file used for upgrading. Select **Port Manager→File Transfer** from the menu.



7. In the **File Transfer** window select **XModem-CheckSum** for **Protocol**, and **Receive** for **Direction**. Selecting **OK** causes the terminal to receive settings from CN2610.

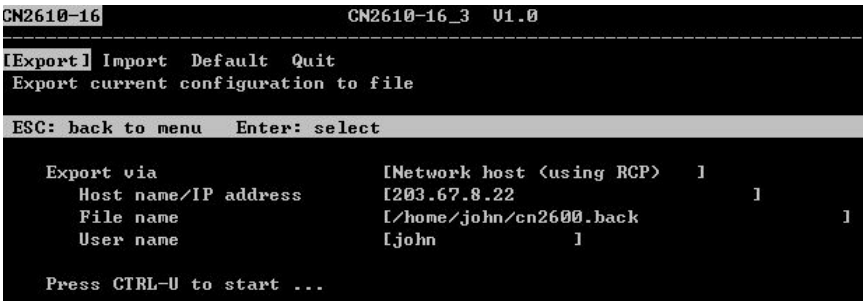


8. Choose the backup filename, `CN2610.back` for example. CN2610 will then export settings to the file. Press any key to continue.

Remote RCP Export

As we pointed out earlier, RCP is a file transfer protocol that does not require a password.

1. Login to your UNIX/LINUX host. For example, login to 203.67.8.22 as user `john`.
2. Create a file named `.rhosts` in this directory. Enter CN2610's IP address, e.g., 192.168.205.21, or CN2610's domain name (if it's defined in your `/etc/hosts` file), in the `.rhosts` file.
3. Telnet CN2610's IP address.
4. After entering CN2610's **MAIN MENU**, select **seTting→Export**.
5. In the **Emport via** column, select **Network host (using RCP)**.
6. Enter the UNIX/LINUX host's IP address for **Host name/IP address**.
7. Enter CN2610's firmware file name on the UNIX/LINUX host for **File name**.
8. Enter the user name required to login to the UNIX/LINUX host for **User name**.
9. Press **CTRL-U** to start.


CN2610-16 CN2610-16_3 V1.0
[Export] Import Default Quit
Export current configuration to file
ESC: back to menu Enter: select
Export via [Network host (using RCP)]
Host name/IP address [203.67.8.22]
File name [/home/john/cn2600.back]
User name [john]
Press CTRL-U to start ...

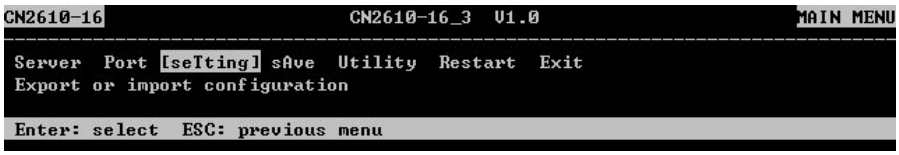
Setting – Import

Saved settings can be imported back to CN2610. There are two settings to choose from for importing from a file, console terminal or remote RCP.

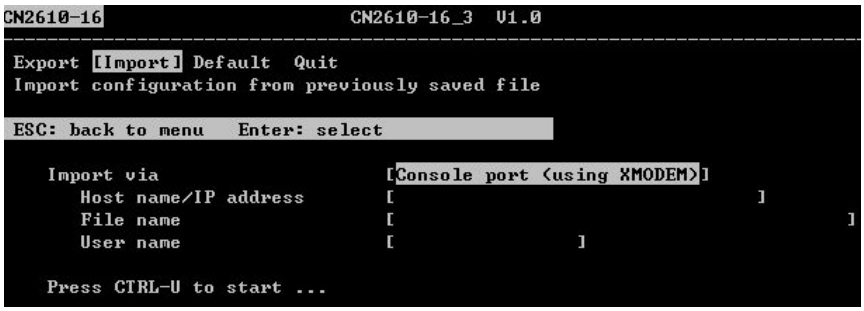
Console Terminal Import

1. Run **Start→Programs→PComm Terminal Emulator**. Follow the steps earlier to enter **MAIN MENU**.

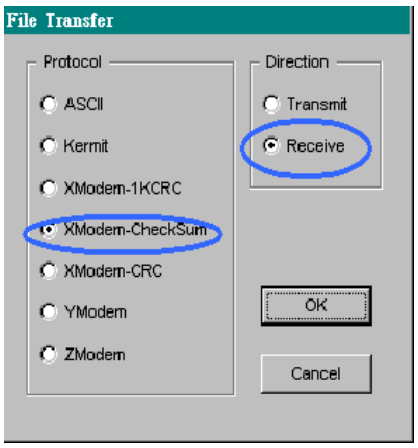
2. In **MAIN MENU** select **seTting**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port [seTting] sAve Utility Restart Exit
Export or import configuration
Enter: select ESC: previous menu

3. In **SETTING MENU** select **Import**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0
Export [Import] Default Quit
Import configuration from previously saved file
ESC: back to menu Enter: select
Import via [Console port (using XMODEM)]
Host name/IP address [ ]
File name [ ]
User name [ ]
Press CTRL-U to start ...

4. Select **Console port (using XMODEM)** for upgrade type and then press **Ctrl-U** to start.
5. In the **File Transfer** window select **XModem-CheckSum** for **Protocol** and **Transmit** for **Direction**. This causes the file to be sent from the terminal to CN2610. Click **OK**.

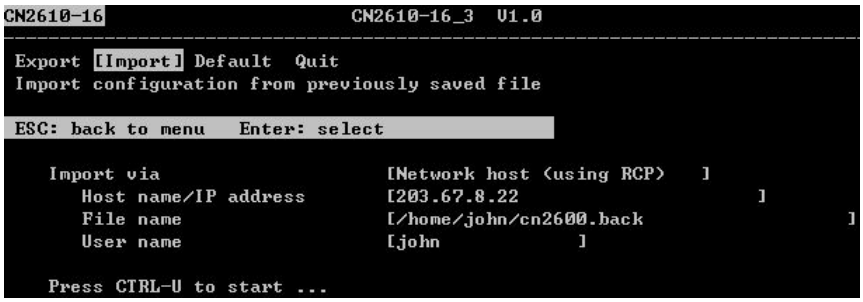


6. Locate the setting file, `CN2610.back` for example. CN2610 receives settings to this file. Press any key to continue.

Remote RCP Import

As we pointed out earlier, RCP is a file transfer protocol not requiring a password.

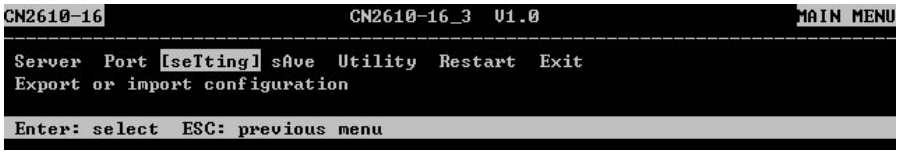
1. Login to your UNIX/LINUX host. For example, login to 203.67.8.22 as user `john`.
2. Create a file named `.rhosts` in this directory. Enter CN2610's IP address, e.g., 192.168.205.21, or CN2610's domain name (if it's defined in your `/etc/hosts` file), in the `.rhosts` file.
3. Telnet CN2610's IP address.
4. After accessing CN2610 **MAIN MENU**, select **seTting→Import**. In **Upgrade via** column, select **Network host (using RCP)**.
5. Enter the UNIX/LINUX host's IP address for **Host name/IP address**.
6. Enter CN2610's firmware file name on the UNIX/LINUX host for **File name**.
7. Enter the user name required to login to the UNIX/LINUX host for **User name**.
8. Press **CTRL-U** to start.


CN2610-16 CN2610-16_3 V1.0
Export [Import] Default Quit
Import configuration from previously saved file
ESC: back to menu Enter: select
Import via [Network host (using RCP)]
Host name/IP address [203.67.8.22]
File name [/home/john/cn2600.back]
User name [john]
Press CTRL-U to start ...

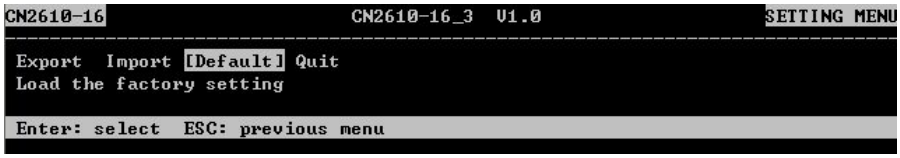
Default

CN2610 can restore default settings if necessary. Note that the IP address will not be changed to default.

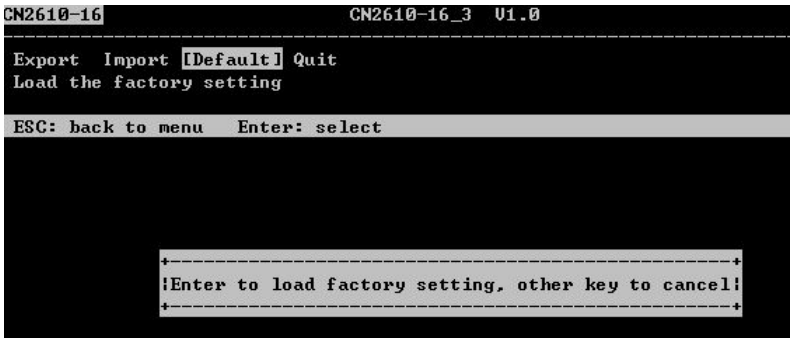
1. In **MAIN MENU** select **seTting**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port [seTting] sAve Utility Restart Exit
Export or import configuration
Enter: select ESC: previous menu

2. In **SETTING MENU** select **Default**, and then press **Enter**.


CN2610-16 CN2610-16_3 V1.0 SETTING MENU
Export Import [Default] Quit
Load the factory setting
Enter: select ESC: previous menu

3. Press **Enter** to confirm that you wish to erase all settings and restore the default settings. Press any key to cancel.


CN2610-16 CN2610-16_3 V1.0
Export Import [Default] Quit
Load the factory setting
ESC: back to menu Enter: select
+--+
¦Enter to load factory setting, other key to cancel¦
+--+

A

Trouble Shooting

- **Console Terminal Problems**
- **How to Configure Dual Ethernet Ports**
- **Terminal Port Problems**
- **How to Save CN2610's Parameters**
- **ASPP Port Problems**
- **SLIP/PPP Connection Problems**
- **RAIDUS Problems**

Console Terminal Problems

Q: No message displayed on the console terminal.

Solutions:

- Check to see if the terminal is set to 115200 bps, 8 data bits, no parity, 1 stop bit.
- Check to see if the RS-232 cable is wired correctly. The console needs CTS/DCD signals to trigger. Refer to Cable Wiring in Appendix D.
- The console may be blocked waiting for an event. Press ESC to try unblocking.

Q: Garbage characters displayed on console terminal.

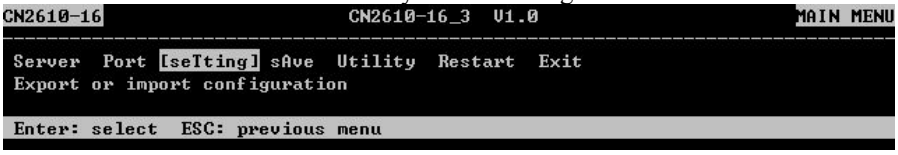
Solutions:

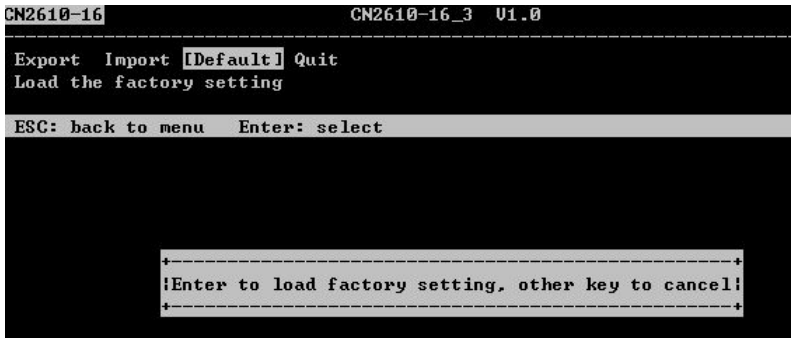
- Check to see if the terminal is set to 115200 bps, 8 data bits, no parity, 1 stop bit.
- Check to see if terminal type setting is correct. The console only accepts ansi/vt100 or vt52.
- Press Ctrl-L to refresh the display.

Q: How can I restore CN2610 to the factory default settings?

Solutions:

- After entering Console window, select setting→Default, and then press Enter. The CN2610 will be restored to the factory default settings.




CN2610-16
CN2610-16_3 V1.0
Export Import [Default] Quit
Load the factory setting
ESC: back to menu Enter: select
Enter to load factory setting, other key to cancel

Q: If I forget the password for my CN2610, what should I do?

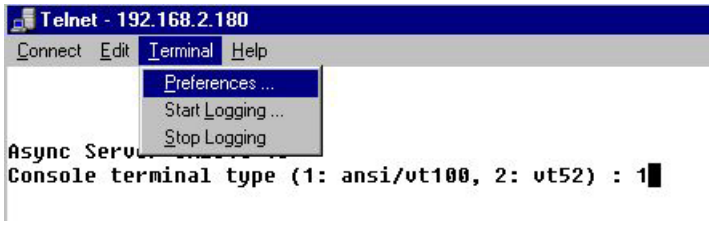
Solutions:

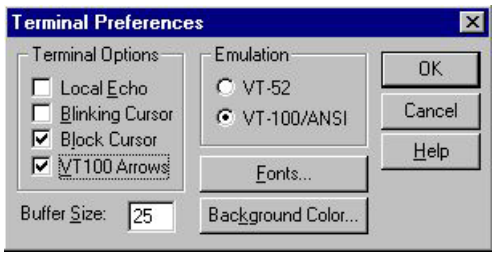
- Press the "Password Reset button" on the CN2610's front panel for more than 3 seconds. The password stored in the Flash ROM will be erased. Refer to chapter 1 for more details.

Q: I used Telnet Console in a Windows 9x/NT environment, but I couldn't use the arrow keys to select options, what should I do?

Solutions:

- In Telnet, click on the **Terminal** menu, choose **Preferences**, and then select **VT100 Arrows** in the **Terminal Preferences** window. Click on **OK** to go back to the **MAIN MENU**, and then it can work properly now.



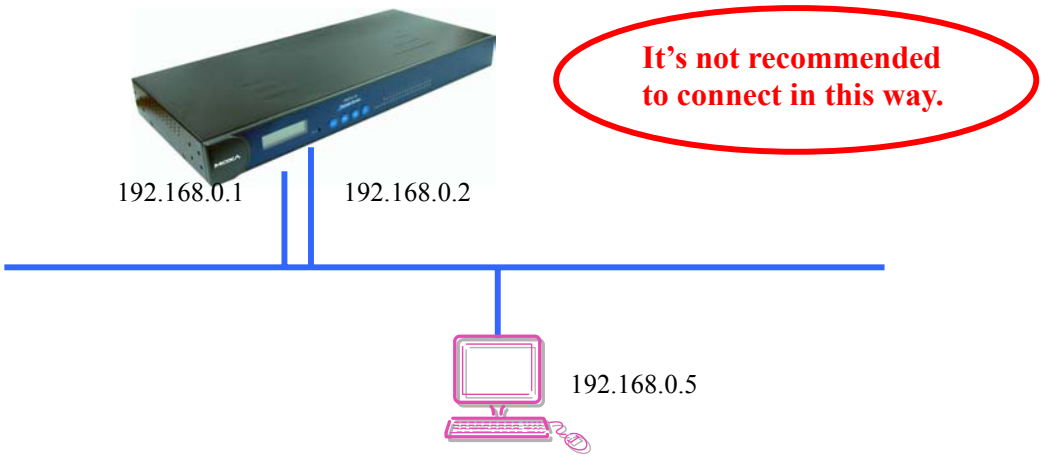


How to Configure Dual Ethernet Ports

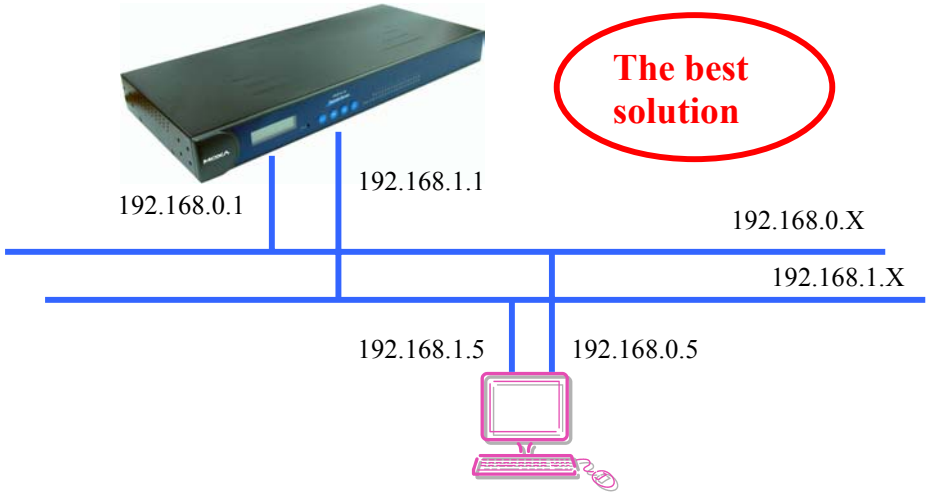
Q: CN2610 has 2 Ethernet ports. How to configure these 2 Ethernet ports? Should I set up CN2610's 2 Network Interface Cards in different networks, or set 2 different IP addresses in the same NIC?

Solutions:

- Moxa does not recommend you setup 2 LAN ports in the same physical network and subnet. You might encounter unpredictable outcomes. We also suggest that you connect 2 different NICs to different networks.



1. First, connect CN2610's LAN1 and LAN2 to the same hub or switch. Configure IP addresses as 192.168.0.1 and 192.168.0.2, and subnet as 255.255.255.0.
2. Connect one of the hosts on the network to the same hub or switch, and configure its IP address as 192.168.0.5, and subnet as 255.255.255.0.
3. When you set up CN2610 like this, we could assume that you expect 2 NICs can be in load balance. Load balance in the Internet application generally means that both of connections conduct transmission at the same time. But when a CN2610 is configured in this way, there is only 1 IP that will conduct transmission.
4. In addition, you might have another expectation when setting up CN2610 like this: failing over (redundant). Generally, redundancy means that a NIC has 2 network interfaces connecting to 2 different switches or hubs. When one of the connections, switches, or hubs fails, the other one will take over. But this definition of redundancy differs from MOXA CN2610. The general idea of redundancy is 1 MAC address, and 1 IP address. But MOXA CN2610 has 2 MAC addresses, and 2 IP addresses, which are independent from each other.
5. For this reason, Moxa strongly recommends the followings: connect 2 different LAN ports to 2 different physical networks as shown below.



Terminal Port Problems

Q: When a terminal is connected to one of CN2610's serial ports, o message is displayed on the terminal attached to the CN2610 terminal port when powered on.

Solutions:

- One of the possible reasons is that this serial port is configured to **Disable** mode, or to other application mode. Use Serial Console or Telnet Console, select **Port → Mode**, and

then move the cursor to the **Application** corresponding to the serial port, and change **Disable** to **Terminal**.

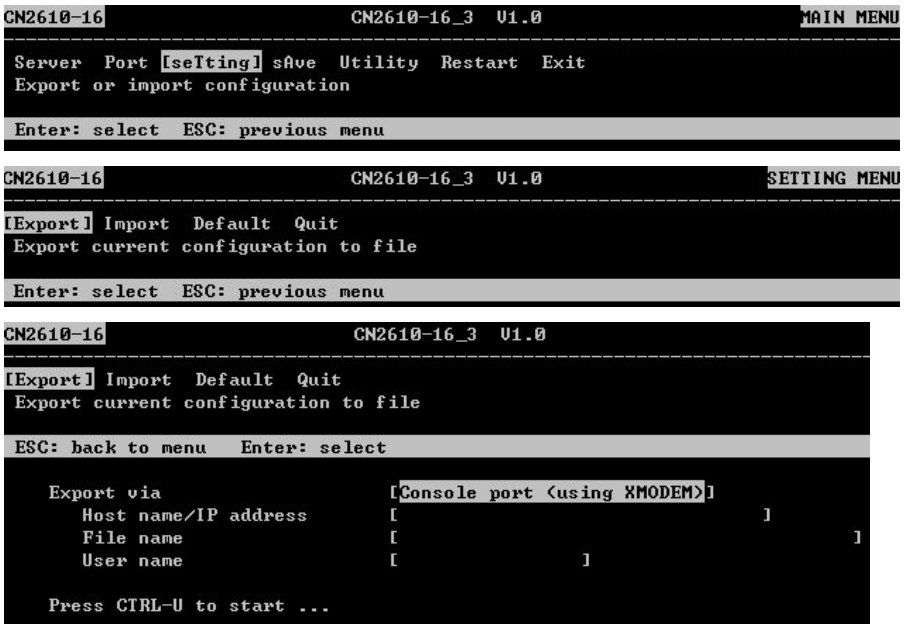
- Check to see if the terminal's serial port is set to the same settings as CN2610's serial port. Use Serial Console or Telnet Console, select **Port → Line**, and then move the cursor to the corresponding serial port, and check to see if **Speed, Bits, Stop, Parity, FIFO, RTS/CTS, XON/XOFF**, and **Discon.ctrl** settings are the same with the terminal's serial port.
- Check to see if the RS-232 cable is wired correctly. If the port is utilizing the RTS/CTS hardware flow control, then the RTS, CTS pins should be included. In this case, a cable with only TxD, RxD, and GND pins is not allowed.
- The terminal may be unlocked by pressing **[Ctrl-S] (Hex Code 0x13)** if software flow control is used. Press **[Ctrl-Q] (Hex Code 0x11)** to relieve it.

How to Save CN2610's Parameters

Q: How can I save CN2610's parameters to avoid unexpected power failure, or to transfer the same parameters to another CN2610?

Solutions:

- After entering Console's screen, select **seTting → Export**, and press **Enter**. Then you can use **XMODEM** in a Windows host, or **RCP** in a UNIX host to save the parameters in a file.


CN2610-16 CN2610-16_3 V1.0 MAIN MENU
Server Port [seTting] sAve Utility Restart Exit
Export or import configuration
Enter: select ESC: previous menu
CN2610-16 CN2610-16_3 V1.0 SETTING MENU
[Export] Import Default Quit
Export current configuration to file
Enter: select ESC: previous menu
CN2610-16 CN2610-16_3 V1.0
[Export] Import Default Quit
Export current configuration to file
ESC: back to menu Enter: select
Export via [Console port (using XMODEM)]
Host name/IP address [ ]
File name [ ]
User name [ ]
Press CTRL-U to start ...

ASPP Port Problems

Q: The application utilizing the ASPP subroutines could not connect to the CN2610.

Solutions:

- Check to see if the target port's mode is set to ASPP. The connection will fail if the port mode is set to something other than ASPP. After entering Console's screen, select **Port → Mode**, and move the cursor to the **Application** corresponding to the serial port, and set it to **Device Control**; In **Mode** column, set it to **ASPP**.
- Moxa provides example programs on the website for you to download: www.moxa.com

SLIP/PPP Connection Problems

Q: Cannot make a SLIP connection to a remote host.

Solutions:

- Check to see if the CN2610's SLIP port baud rate (in the **[Port][Line]** menu) is the same as the remote host's baud rate.
- Check to see if data bits= 8.
- Check to see if the XON/XOFF flow control is the same as the remote site.
- Check to see if the RS-232 cable is wired correctly. If the port is utilizing RTS/CTS hardware flow control, then the RTS, CTS pins should be included. In this case, cables with only pins 2, 3, and 7 are not allowed.
- Make sure there is no "getty" or other process using the SLIP port on the remote site.

RADIUS Problems

Q: What can I do if there is an authentication check failure in the radius server?

Solutions:

- Check to see if the console password is the same as the radius server's radius key.
- Make sure the password was entered correctly.
- Make sure the account and password in login script are correct.
- If authentication check runs for a long time and then times out, check whether RADIUS Server's IP is correct or not. Ex: Set up one port as Rtelnet, telnet CN2610's TCP port from radius, and in the meantime telnet CN2610's console and Monitor {line} status. Check to see if the remote IP address matches the radius IP address you set in CN2610.

Q: Why can't I compile radius software on a system running Linux Red hat 5.0?

Solutions:

Take the following steps if you compiled RADIUS2.3 on Red hat 5.0 or above:

1. Save makefile-SCO as a file named makefile-LINUX, and then modify the content as follows:

   ```
   #
   # make file for LINUX
   #

   LIBS = -lcrypt
   include Makefile
   ```

2. Add two similar line to the shell program "mk_radius" at read_os "1". For example, they might appear as follows:

   ```
   read_os
   case $ans in
   '1')
   clear
   mk_src
   echo "enter lib directory"
   cd lib
   echo "compiling source program ...."
   make
   cd ..
   echo "linking program ....."
   make -f Makefile-LINUX;;
   ```

B

RADIUS Server

Managing dispersed serial lines and modem pools for large numbers of users can create the need for significant administrative support. Since modem pools are a link to the outside world, they require careful attention to security, authorization, and accounting. This can best be achieved by managing a single "database" of users, allowing for authentication (verifying user name and password) as well as configuring information which details the type of service to deliver to the user (for example: SLIP, PPP, telnet, rlogin). Moxa CN2610 Async Server supports RADIUS protocol, which requires only one database for remote user management

- **What is RADIUS?**
- **Setting up CN2610**
- **Setting up UXIX Hosts**
- **Setting up Windows NT Hosts**
- **Setting up Windows 2000 Hosts**
- **Setting up Windows 2003 Hosts**

What is RADIUS?

Definition

Remote Authentication Dial-up User Service, or RADIUS, is the standard for centralizing the authentication, authorization, and accounting of remote access users.

Here is a brief description of how RADIUS works: When a user dials in to a remote access device, that device communicates with the central RADIUS server to determine if the user is authorized to connect to the LAN. The RADIUS server performs the authentication and responds with the result – either accept or reject. If the user is accepted, the remote access server routes the user onto the network; if not, the RAS will terminate the user's connection. The RADIUS server also provides accounting services if supported by the remote access server.

With RADIUS, a network manager or ISP only needs to maintain a single, central database against which all remote user authentication takes place. This greatly eases the management burden associated with administering large numbers of Dial-in users.

Client/Server Architecture

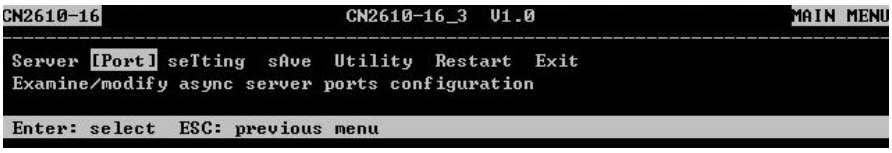
RADIUS is a type of client-server software. Communication servers, such as CN2610, play an active role, whereas a RADIUS server is passive.

1. When a remote host is connected to CN2610, it is prompted to enter its user ID and password.
2. After receiving the user ID and password, CN2610 sends the information to a defined RADIUS server. Up to this point, the remote user is still unable to access the network.
3. The RADIUS server compares the user ID and password with its internal database, and then uses the internet to respond, either accepting or rejecting.
4. If CN2610 receives the "accept" message from the RADIUS server, the remote user is allowed to enter the network. Otherwise, CN2610 will wait for another try, or terminate the connection when a specified time limit has been reached.

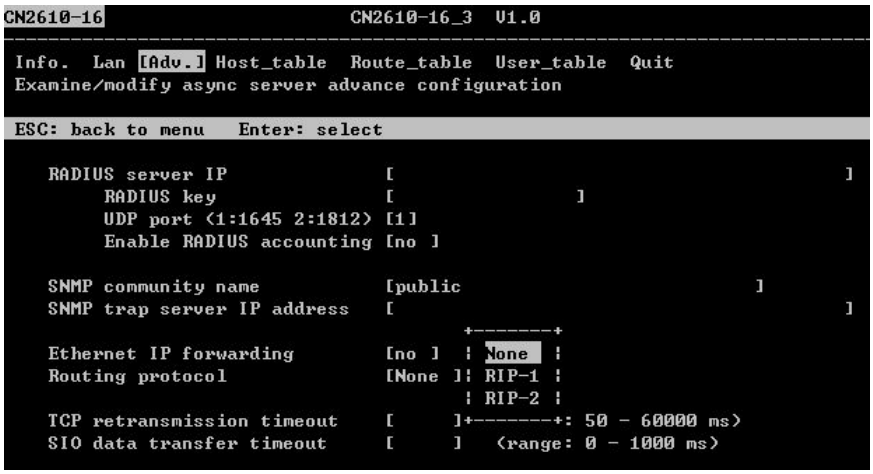
Setting up CN2610

Setting up the RADIUS Server IP Address

1. In **MAIN MENU**, select **Server.**



2. In **SERVER MENU**, select **Adv**.


CN2610-16 CN2610-16_3 V1.0
Info. Lan [Adv.] Host_table Route_table User_table Quit
Examine/modify async server advance configuration
ESC: back to menu Enter: select
RADIUS server IP [ ]
RADIUS key [ ]
UDP port (1:1645 2:1812) [1]
Enable RADIUS accounting [no]
SNMP community name [public]
SNMP trap server IP address [ ]
Ethernet IP forwarding [no]
Routing protocol [None]
None
RIP-1
RIP-2
TCP retransmission timeout [ ]: 50 - 60000 ms)
SIO data transfer timeout [ ] (range: 0 - 1000 ms)

3. RADIUS settings.

   RADIUS server IP: [RADIUS server IP address]

   RADIUS key: [RADIUS password] (must be the same in the RADIUS server)

   UDP port: [1/2]

   Mode 1: An earlier but rather common setting is 1645. If you choose 1645, the authentication has to be set as 1645, and accounting as 1646 in the RADIUS Server.

   Mode 2: The latest setting is 1812. If you choose 1812, the authentication must be set as 1812, and accounting as 1813 in the RADIUS Server.

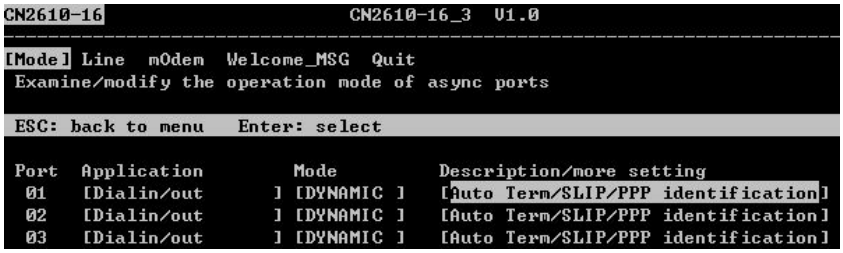
   Enable RADIUS accounting: [yes/no]

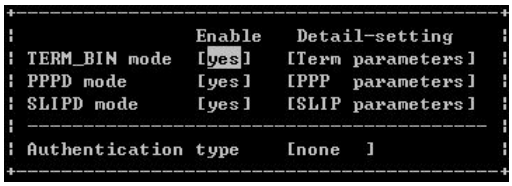
4. Save, and then restart CN2610.

Setting up Port Configuration

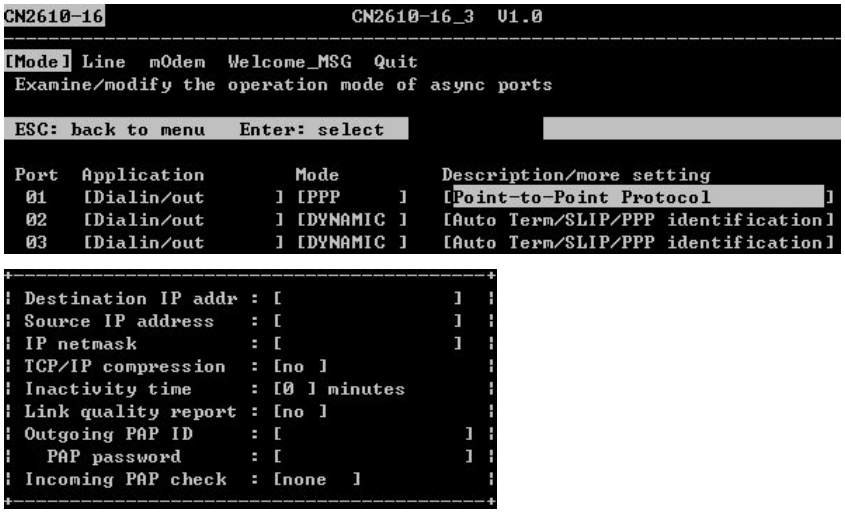
RADIUS is effective for dial-up services. Apart from dial-in services (PPP, SLIP, Dynamic), it also supports RADIUS settings in Terminal application, as well as Console Management application.

Dial-in/out – Dynamic Mode

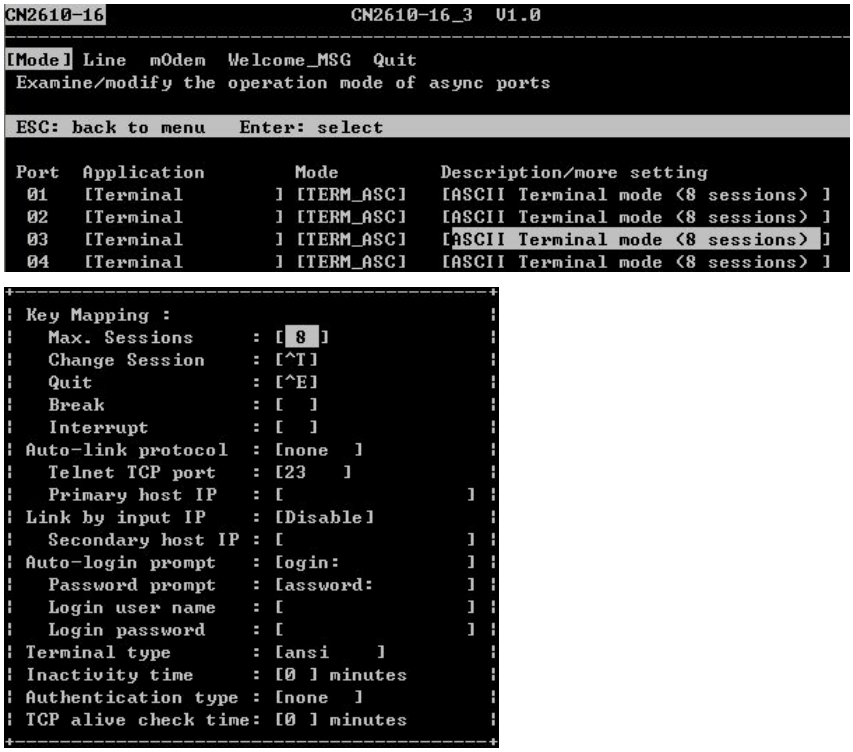

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
02 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
03 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]


Enable Detail-setting
TERM_BIN mode [yes] [Term parameters]
PPPD mode [yes] [PPP parameters]
SLIPD mode [yes] [SLIP parameters]
Authentication type [none]

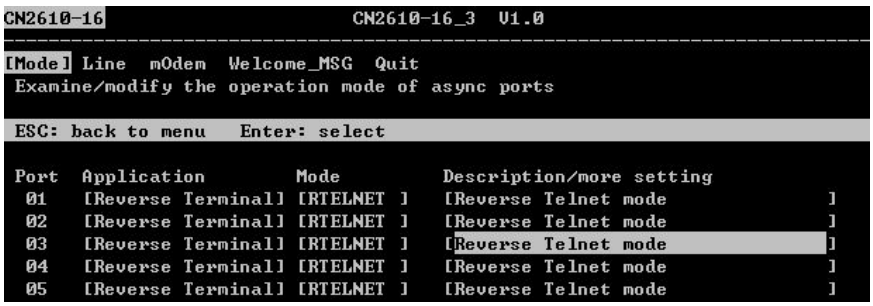
Dial-in/out – PPP/PPPD Mode

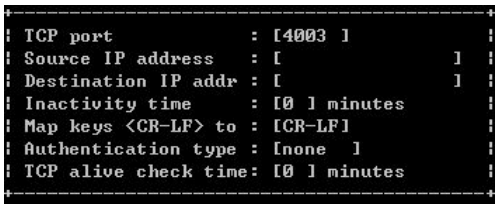

CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Dialin/out] [PPP] [Point-to-Point Protocol]
02 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
03 [Dialin/out] [DYNAMIC] [Auto Term/SLIP/PPP identification]
Destination IP addr : [ ]
Source IP address : [ ]
IP netmask : [ ]
TCP/IP compression : [no]
Inactivity time : [0] minutes
Link quality report : [no]
Outgoing PAP ID : [ ]
PAP password : [ ]
Incoming PAP check : [none]

Dial-in/out – TERM_BIN/TERM_ASC Mode


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
02 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
03 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
04 [Terminal] [TERM_ASC] [ASCII Terminal mode (8 sessions)]
Key Mapping :
Max. Sessions : [8]
Change Session : [^T]
Quit : [^E]
Break : [ ]
Interrupt : [ ]
Auto-link protocol : [none]
Telnet TCP port : [23]
Primary host IP : [ ]
Link by input IP : [Disable]
Secondary host IP : [ ]
Auto-login prompt : [ogin:]
Password prompt : [assword:]
Login user name : [ ]
Login password : [ ]
Terminal type : [ansi]
Inactivity time : [0] minutes
Authentication type : [none]
TCP alive check time: [0] minutes

Console Management – RADIUS Settings


CN2610-16 CN2610-16_3 V1.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
02 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
03 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
04 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]
05 [Reverse Terminal] [RTELNET] [Reverse Telnet mode]


TCP port : [4003]
Source IP address : [ ]
Destination IP addr : [ ]
Inactivity time : [0] minutes
Map keys <CR-LF> to : [CR-LF]
Authentication type : [none]
TCP alive check time: [0] minutes

Setting up UNIX Hosts

You can use your own RADIUS software to do this. Moxa, however, provides a RADIUS program for UNIX. To use Moxa RADIUS Server, extract radius.2.3.tar from the CN2610 CD. All files are extracted to the /radius2.3 directory.

Installing the RADIUS Execution File

1. Login to the UNIX host and create a directory.

   #mkdir /radius
   #cd radius2.3/bin
2. Mount CD-ROM volume

OS	Command
SCO OpenServer	***#mount -f ISO9660, filemode=444 <device>*** Example: #mount-f ISO9660, filemode=444 /dev/cd1/mnt
Solaris x86	In the volume manager mounts the CD-ROM on mount point /cdrom/cdrom0
Linux	#mount /dev/cdrom or #mount-t iso9660-ro mode=0555<device> Example: #mount-t iso9660-ro mode=0555/dev/hdb/mnt

3. Copy file to host.

   #cp /mnt/cdrom/radius.2.3.tar
4. Extract the .tar to files.(radiu.2.3 subdirectory)

   #tar xvf radius.2.3.tar

   After extracting, there are subdirectories, as follows:

   /src: source code

   /conf: configuration

   /log: log record

   /temp: temporary files

   /bin: excution files
5. Compile and link.

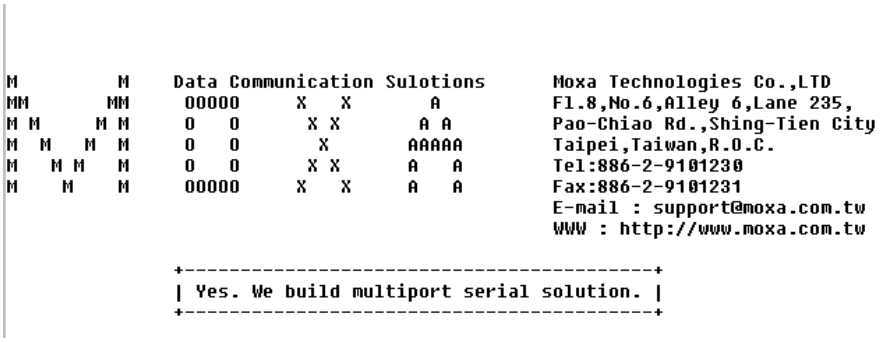
   #cd /src
   #sh mk_radius

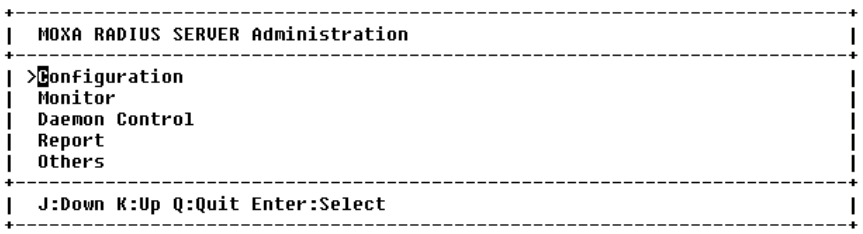
RADIUS Server Configuration

1. Enter RADIUS administration.

   #cd radius.2.3/bin
   #./radiusadm

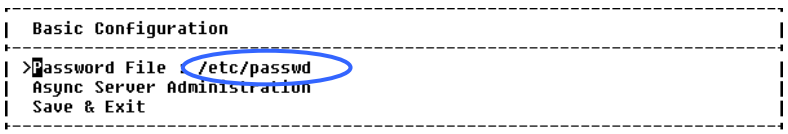
2. You will see a welcome message, and then enter RADIUS SERVER administration.





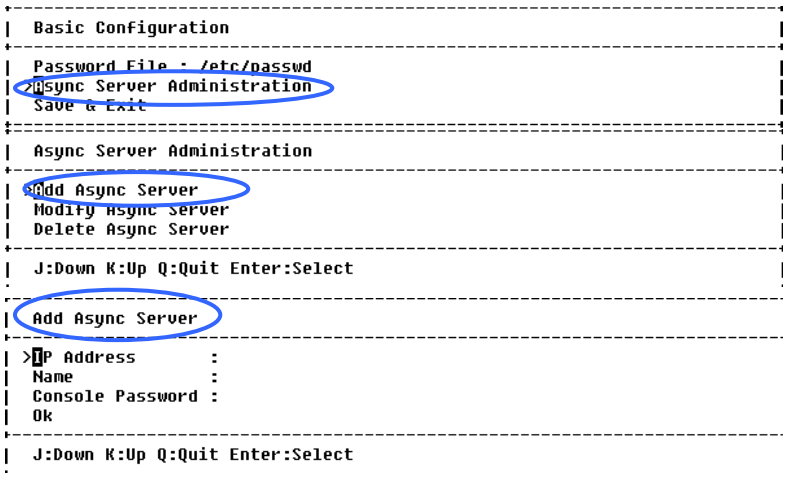
3. Specify password file.

   "Configuration"→"Basic Configuration"→Password File
   (/etc/passwd for LINUX)
   (/etc/shadow for SCO UNIX and SOLARIS)
   (/etc/master.passwd fot FREEBSD and BSDI)



4. Specify CN2610 IP.

   "Configuration"→"Basic Configuration"→" Async Server Administration"→"Add Async Server"



   IP address : [ ]→ CN2610 IP

   Name: : [ ]→CN2610 server name

Console Password:[ ]→CN2610 console password

5. Save and exit.

Basic/Extended Permission Group Setting

Basic and extended permission group defines regulations for users.

Add/Modify permission group

"Configuration"→"User Permission Administration"→"Basic Permission Maintenance" or "Extended Permission Maintenance"

```
+------------------------------------------------------------------------------+
|  Configuration                                                               |
+------------------------------------------------------------------------------+
|  Basic Configuration                                                         |
| >User Permission Administration                                              |
|  Proxy Server Administration                                                 |
+------------------------------------------------------------------------------+
+------------------------------------------------------------------------------+
|  User Permission Administration                                              |
+------------------------------------------------------------------------------+
|  Modify User Permission                                                      |
| >Basic Permission Maintenance                                                |
|  Extended Permission Maintenance                                             |
|  Save & Exit                                                                 |
+------------------------------------------------------------------------------+
```

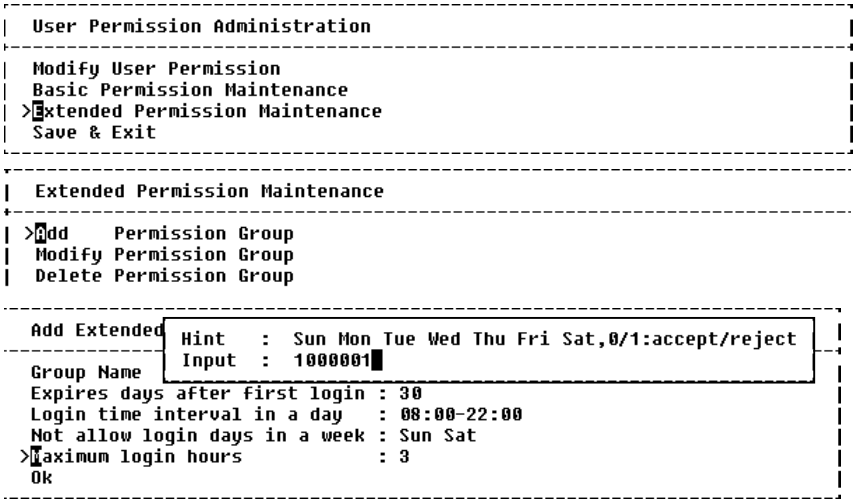
Basic Permission Maintenance

```
|  Basic Permission Maintenance
+------------------------------------------------------------------------------
| >Add    Permission Group
|  Modify Permission Group
|  Delete Permission Group
+------------------------------------------------------------------------------
+------------------------------------------------------------------------------+
|  Add Basic Permission                                                        |
+------------------------------------------------------------------------------+
|  Group Name                   : Example1                                     |
|  Maximum occurrences/user     : 1                                            |
|  Maximum minutes/login        : 60                                           |
|  Idle minutes force to logout : 5                                            |
|  Maximum login hours/month    : 500                                          |
| >Ok                                                                          |
+------------------------------------------------------------------------------+
```

Basic Permission Group	Example	Description
Group Name	Example1	Name of this permission setting
Maximum occurrences/user	1	The user can only login once at the same time. "0" for simultaneous unlimited login sessions
Maximum minutes/login	60	The user has only 60 minutes in each login session "0" for unlimited time
Idle minutes force to logout	5	If the user idles for 5 minutes, the session will be terminated "0" for no kick-out
Maximum login hours/month	500	The user has max. 500 hours per month. "0" means unlimited access

Select **OK** to save.

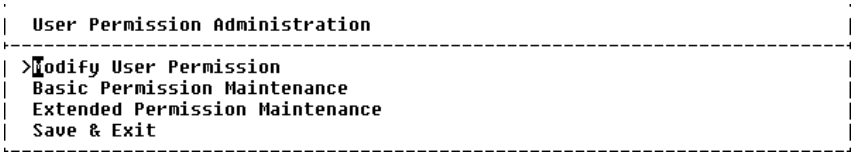
Extended Permission Maintenance


User Permission Administration
Modify User Permission
Basic Permission Maintenance
>Extended Permission Maintenance
Save & Exit
Extended Permission Maintenance
>Add Permission Group
Modify Permission Group
Delete Permission Group
Add Extended
Hint : Sun Mon Tue Wed Thu Fri Sat,0/1:accept/reject
Input : 1000001
Group Name
Expires days after first login : 30
Login time interval in a day : 08:00-22:00
Not allow login days in a week : Sun Sat
>Maximum login hours : 3
Ok

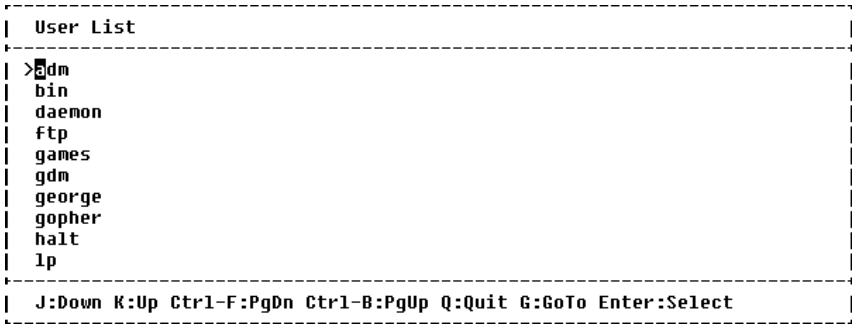
Extended Permission Group	Example	Description
Group Name	Example2	Name of this permission setting
Days to expire after first login	30	The user account expires after 30 days after first login "0" for no expires
Login time interval in a day	08:00-22:00	The user has only 60 minutes in each login session "0" for unlimited 24 hours usage,
Barred login days	Sun Sat	The user is not allowed to login in on Saturday or Sunday. "0" for accept, "1" for reject.
Maximum login hours	500	The user has max. 500 hours for this account. "0" means unlimited access.

Select **OK** to save.

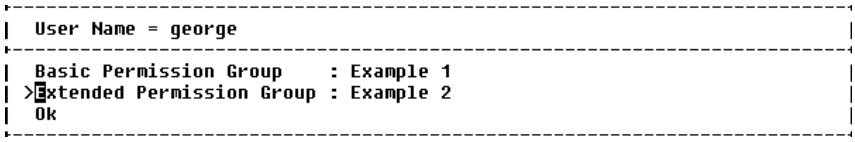
User Settings



"User List" lists all UNIX/LINUX users.



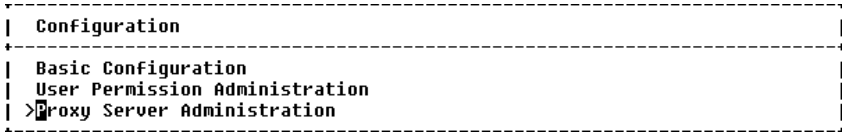
1. Select the user "george" and press [Enter] to modify setting. Press [Ctrl-F] for page down, [Ctrl-B] for page up.
2. Specify basic permission group and extended group for the user "george".

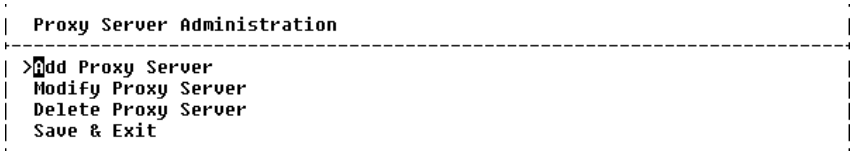


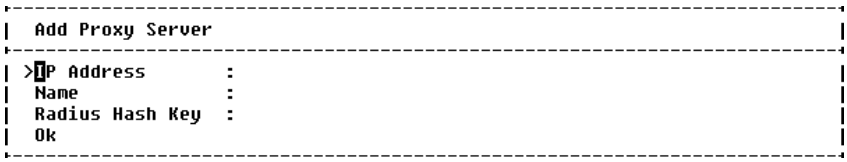
3. Select **OK** to save.

RADIUS proxy

"Configuration"→"Proxy Server Administration"→"Add Proxy Server"







IP address:[ ] →Proxy Server IP

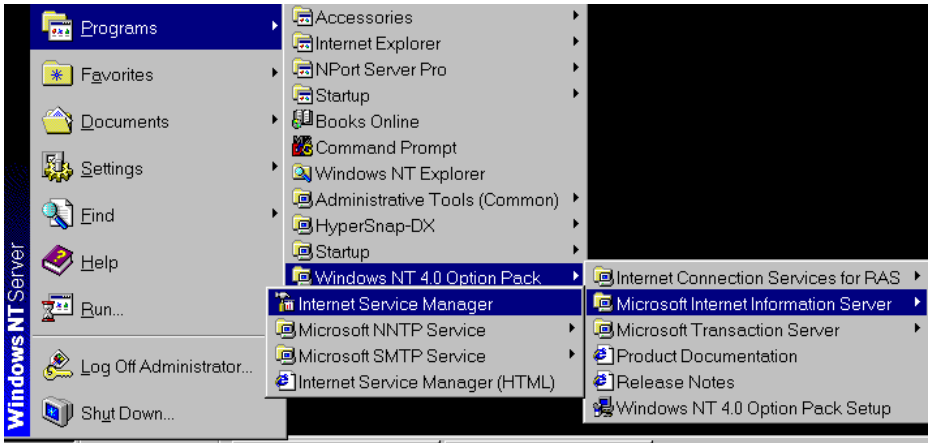
Name: [ ]→ Proxy Server Name

Radius Hash Key:[ ]→ RADIUS encryption key, must be the same key in the proxy server end.

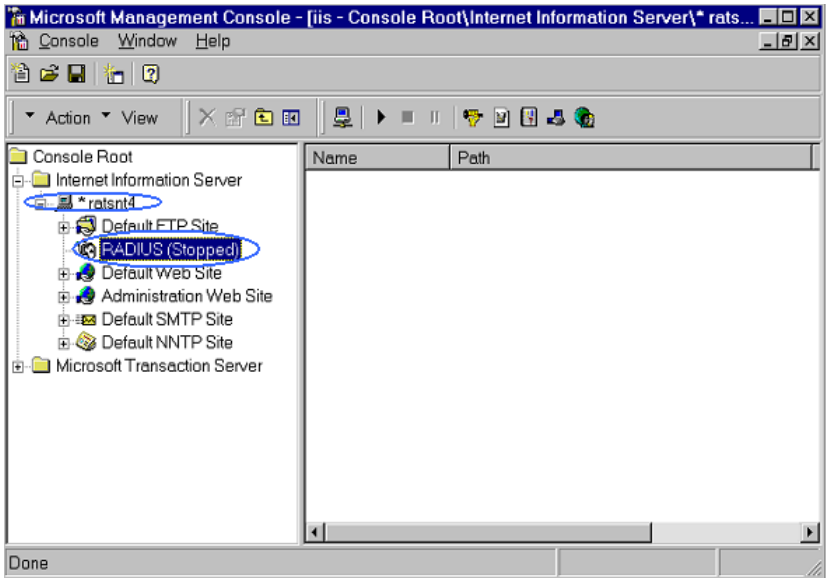
Select "OK" to save.

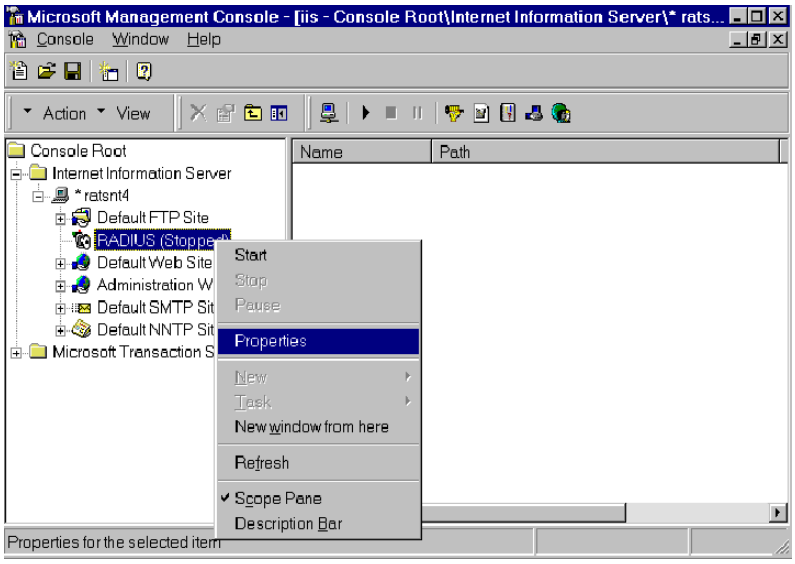
Setting up Windows NT Hosts

1. Install **Windows NT OPTION PACK 4.0** to Windows NT server.
2. "Start"→"programs"→"Windows NT 4.0 Option Pack"→"Microsoft Internet Information Server"→"Management Console Manger".



3. Click "Console Root"→"Internet Information Server" (in the left info window). Your computer's name will be visible.
4. Click "your computer name", after which you will see "RADIUS" in the right info window.





5. Right click on "RADIUS" in the left info window, and then select "properties".
6. Select **Service**. Check the **RADIUS ports**.

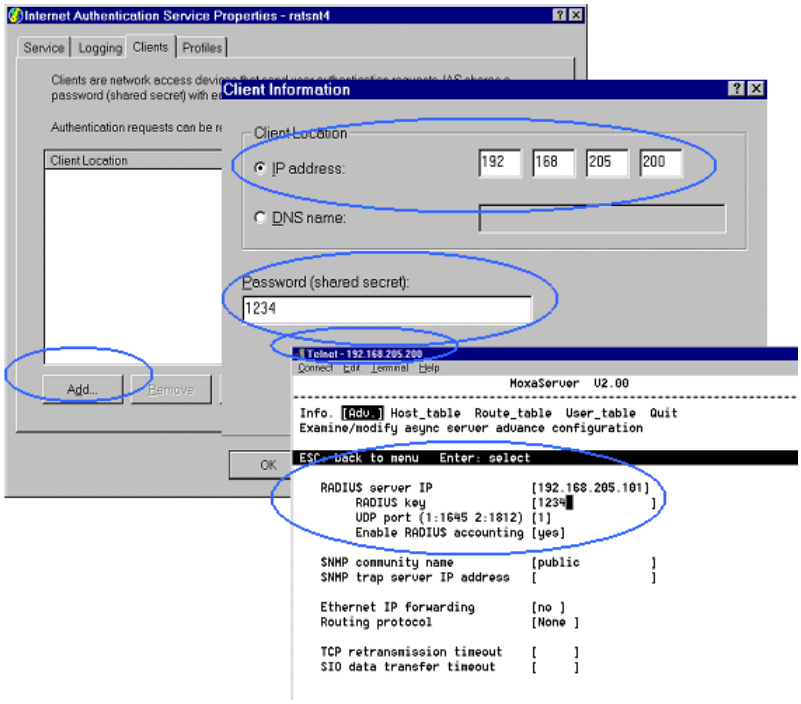
   [Authentication] 1645

   [Accounting] 1646

Select **Client**. Click **Add**.

Enter CN2610 IP address in **IP address** field.

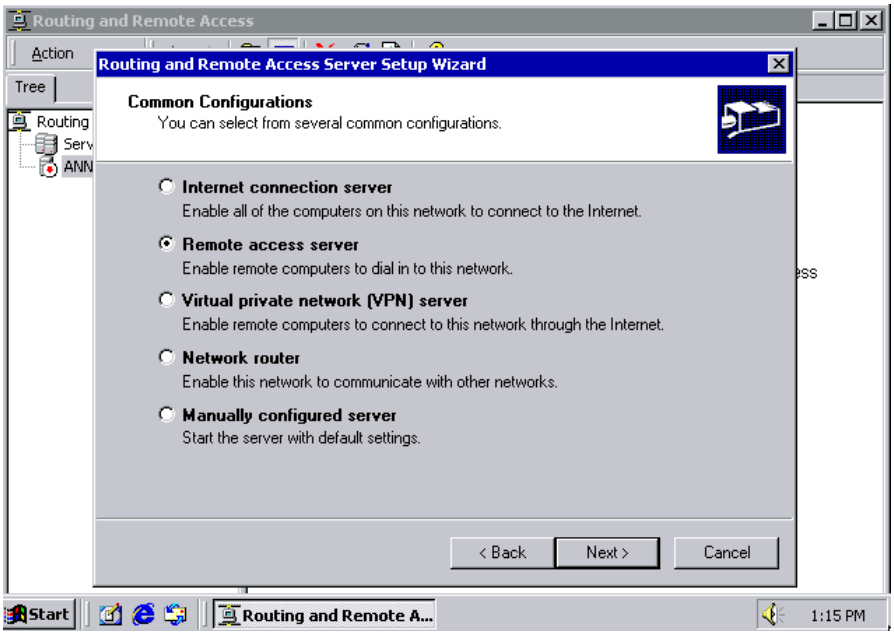
Enter CN2610 password in **password** field. The password corresponds to the RADIUS key setting in CN2610 Console.



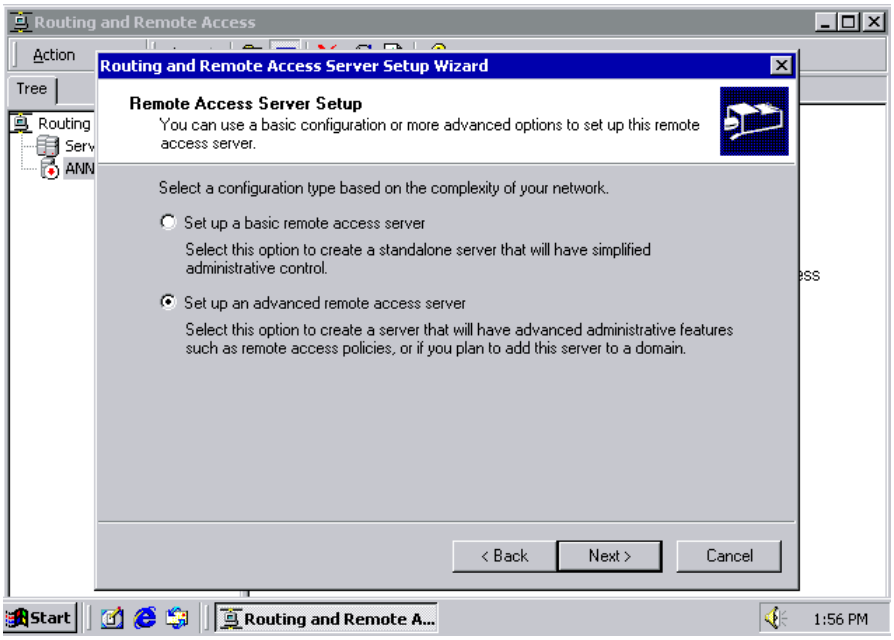
7. Click **Apply**.
8. Right click on **RADIUS** in the left info window. Select **Start**.
9. You will now see that RADIUS is running.

Setting up Windows 2000 Hosts

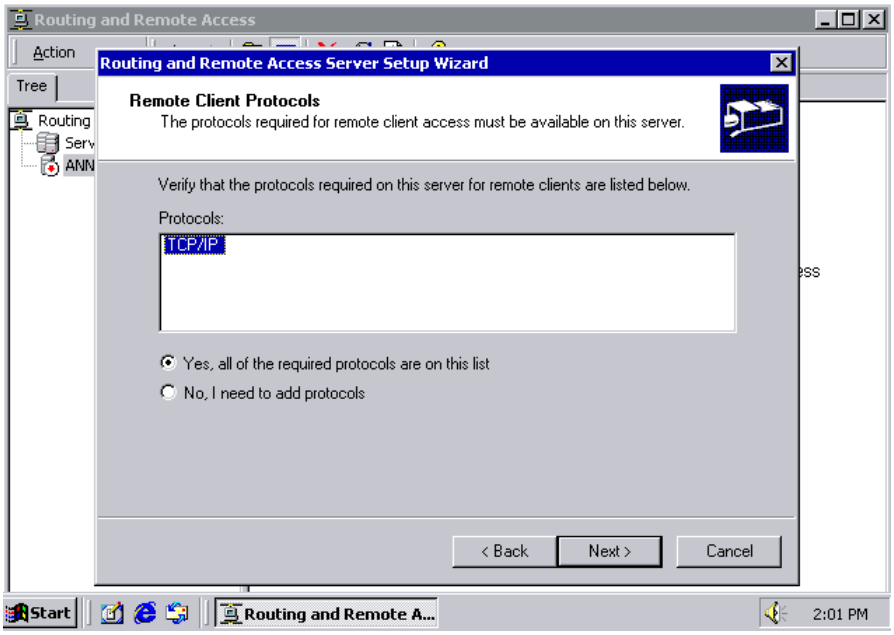
1. Click on Start→Programs→Administrative Tools→Routing and Remote Access.
2. Follow the steps below to install. Right click on **Server (Local)** to select **Configure and Enable Routing and Remote Access**. Click on **Next** to continue.
3. Select **Remote access server**, and click on **Next** to continue.


Routing and Remote Access
Action
Tree
Routing
Routing and Remote Access Server Setup Wizard
Common Configurations
You can select from several common configurations.
Internet connection server
Enable all of the computers on this network to connect to the Internet.
Remote access server
Enable remote computers to dial in to this network.
Virtual private network (VPN) server
Enable remote computers to connect to this network through the Internet.
Network router
Enable this network to communicate with other networks.
Manually configured server
Start the server with default settings.
< Back
Next >
Cancel
Start
Routing and Remote A...
1:15 PM

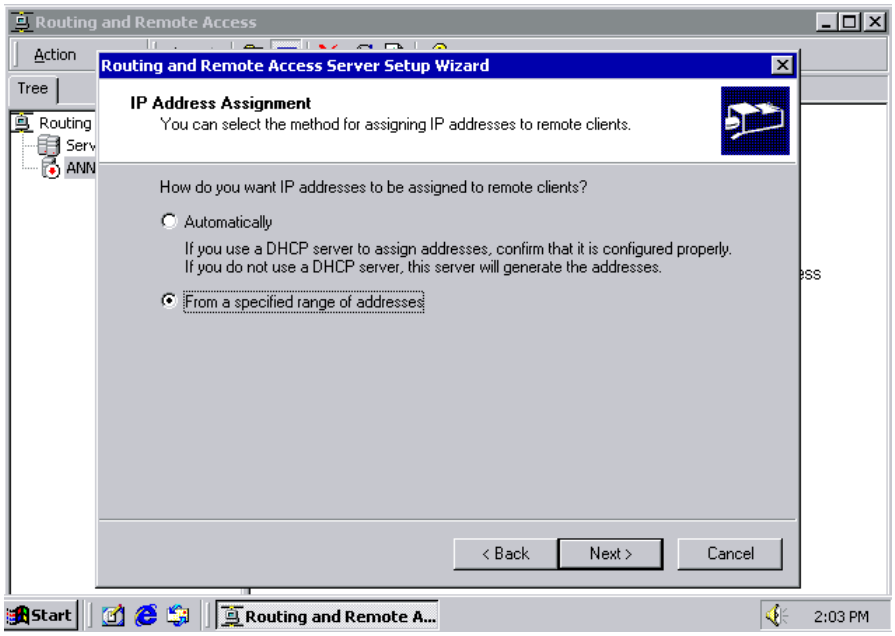
4. Select **Set up an advanced remote access server**, and click on **Next** to continue.

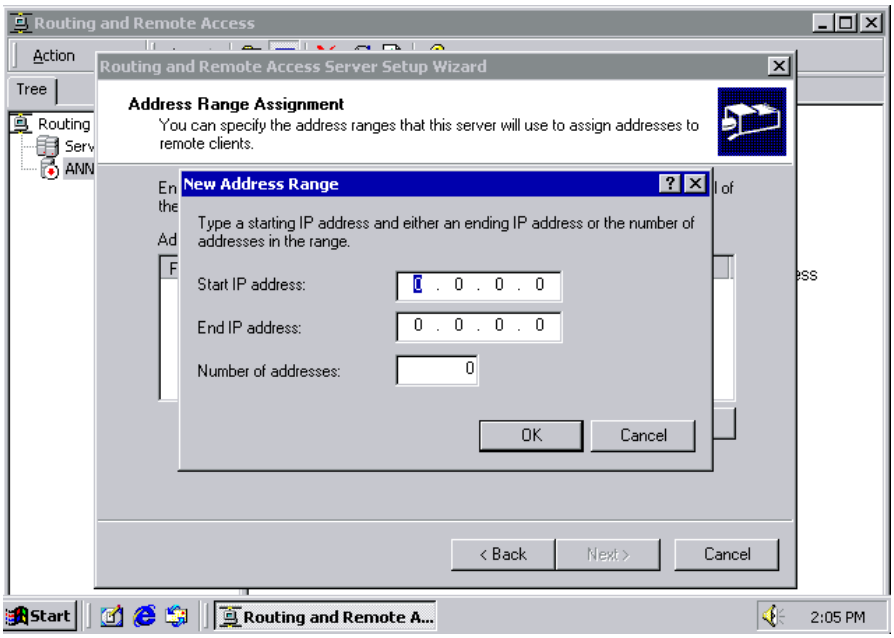

Routing and Remote Access
Action
Tree
Routing
Routing and Remote Access Server Setup Wizard
Remote Access Server Setup
You can use a basic configuration or more advanced options to set up this remote access server.
Select a configuration type based on the complexity of your network.
Set up a basic remote access server
Select this option to create a standalone server that will have simplified administrative control.
Set up an advanced remote access server
Select this option to create a server that will have advanced administrative features such as remote access policies, or if you plan to add this server to a domain.
< Back
Next >
Cancel
Start
Routing and Remote A...
1:56 PM

5. Select TCP/IP protocol, and click on Next to continue.

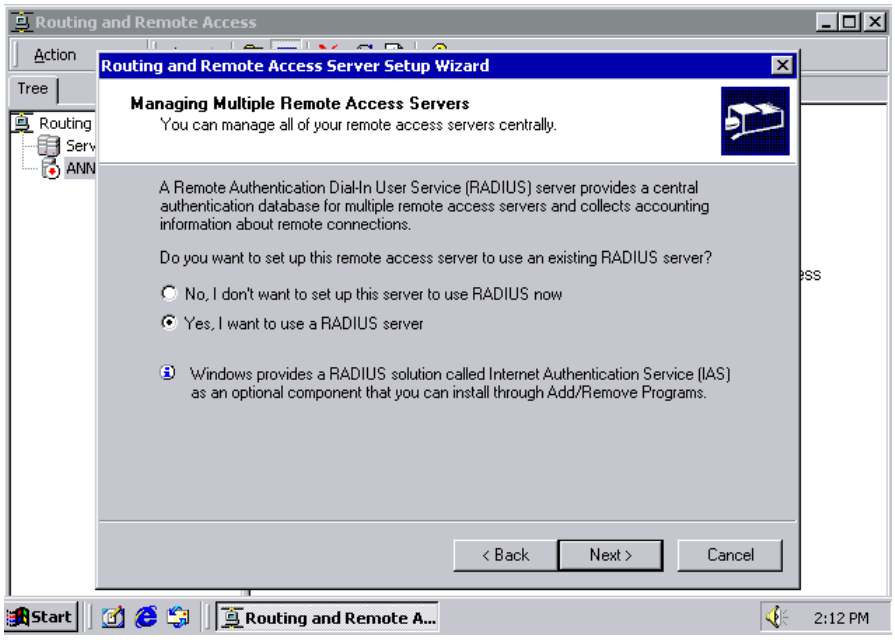

Routing and Remote Access
Action
Tree
Routing
Routing and Remote Access Server Setup Wizard
Remote Client Protocols
The protocols required for remote client access must be available on this server.
Verify that the protocols required on this server for remote clients are listed below.
Protocols:
TCP/IP
Yes, all of the required protocols are on this list
No, I need to add protocols
< Back
Next >
Cancel
Start
Routing and Remote A...
2:01 PM

6. Specify an IP address.


Routing and Remote Access
Action
Tree
Routing
Routing and Remote Access Server Setup Wizard
IP Address Assignment
You can select the method for assigning IP addresses to remote clients.
How do you want IP addresses to be assigned to remote clients?
Automatically
If you use a DHCP server to assign addresses, confirm that it is configured properly.
If you do not use a DHCP server, this server will generate the addresses.
From a specified range of addresses
< Back
Next >
Cancel
Start
Routing and Remote A...
2:03 PM


Routing and Remote Access
Action
Tree
Routing and Remote Access Server Setup Wizard
Address Range Assignment
You can specify the address ranges that this server will use to assign addresses to remote clients.
New Address Range
Type a starting IP address and either an ending IP address or the number of addresses in the range.
Start IP address:
End IP address:
Number of addresses:
OK
Cancel
< Back
Next >
Cancel
Start
Routing and Remote A...
2:05 PM

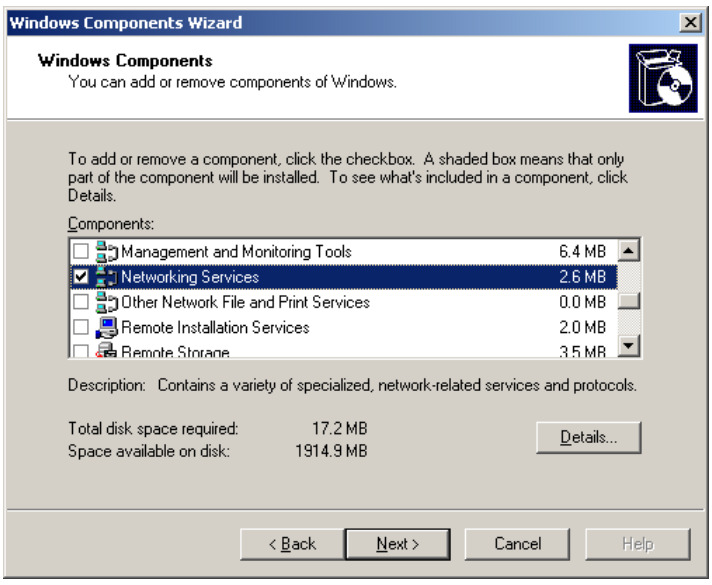
7. Select **Yes, I want to use a RADIUS server**, click on **Next** to start using this function.


Routing and Remote Access
Action
Tree
Routing and Remote Access Server Setup Wizard
Managing Multiple Remote Access Servers
You can manage all of your remote access servers centrally.
A Remote Authentication Dial-In User Service (RADIUS) server provides a central authentication database for multiple remote access servers and collects accounting information about remote connections.
Do you want to set up this remote access server to use an existing RADIUS server?
No, I don't want to set up this server to use RADIUS now
Yes, I want to use a RADIUS server
Windows provides a RADIUS solution called Internet Authentication Service (IAS) as an optional component that you can install through Add/Remove Programs.
< Back
Next >
Cancel
Start
Routing and Remote A...
2:12 PM

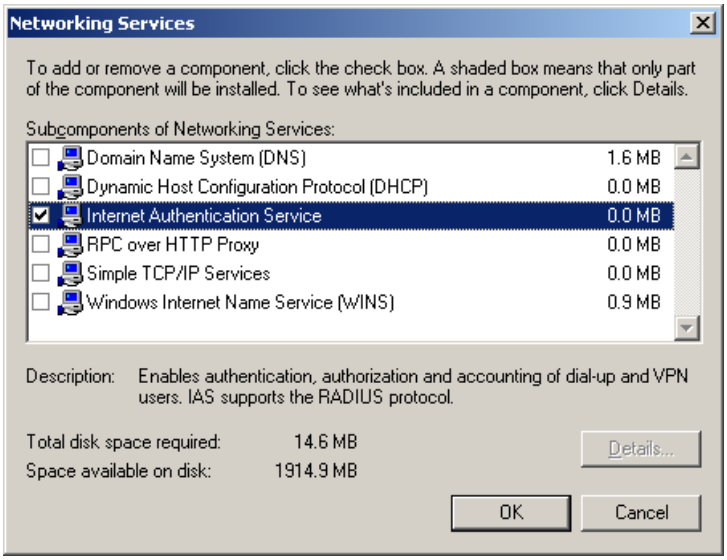
Setting up Windows 2003 Hosts

Windows 2003 uses IAS service instead of RADIUS service. For this reason, you need to install IAS service for using RADIUS in Windows 2003 (IAS service will not be installed by default.)

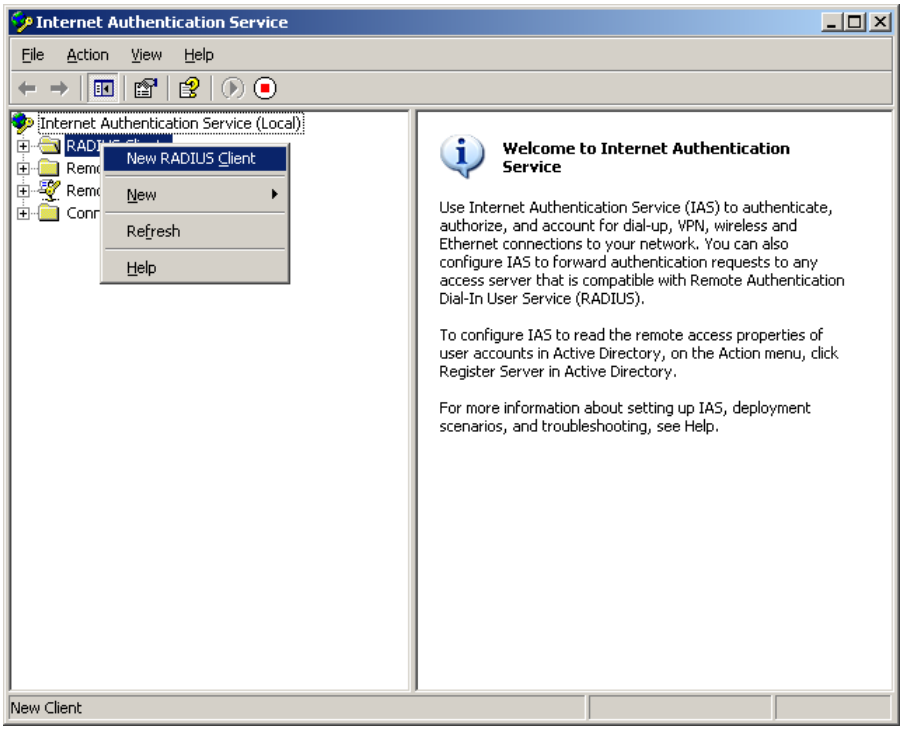
1. Click on **Start→Add or Remove Programs→Add/Remove Windows Components**.
2. When selecting **Windows Components**, select **Network Services**.


Windows Components Wizard
Windows Components
You can add or remove components of Windows.
To add or remove a component, click the checkbox. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.
Components:
Management and Monitoring Tools 6.4 MB
Networking Services 2.6 MB
Other Network File and Print Services 0.0 MB
Remote Installation Services 2.0 MB
Remote Storage 3.5 MB
Description: Contains a variety of specialized, network-related services and protocols.
Total disk space required: 17.2 MB
Space available on disk: 1914.9 MB
Details...
< Back
Next >
Cancel
Help

3. Select **Details**, and then **Internet Authentication Service**. Click on **OK** to continue until the installation is finished.


Networking Services
To add or remove a component, click the check box. A shaded box means that only part of the component will be installed. To see what's included in a component, click Details.
Subcomponents of Networking Services:
Domain Name System (DNS) 1.6 MB
Dynamic Host Configuration Protocol (DHCP) 0.0 MB
Internet Authentication Service 0.0 MB
RPC over HTTP Proxy 0.0 MB
Simple TCP/IP Services 0.0 MB
Windows Internet Name Service (WINS) 0.9 MB
Description: Enables authentication, authorization and accounting of dial-up and VPN users. IAS supports the RADIUS protocol.
Total disk space required: 14.6 MB
Space available on disk: 1914.9 MB
Details...
OK
Cancel

4. After the installation is finished, click on **Administrative Tools**, and run **Internet Authentication Service**, and the window shown below will open.


Internet Authentication Service
File Action View Help
Internet Authentication Service (Local)
New RADIUS Client
New
Refresh
Help
Welcome to Internet Authentication Service
Use Internet Authentication Service (IAS) to authenticate, authorize, and account for dial-up, VPN, wireless and Ethernet connections to your network. You can also configure IAS to forward authentication requests to any access server that is compatible with Remote Authentication Dial-In User Service (RADIUS).
To configure IAS to read the remote access properties of user accounts in Active Directory, on the Action menu, click Register Server in Active Directory.
For more information about setting up IAS, deployment scenarios, and troubleshooting, see Help.
New Client

5. Select **NEW RADIUS Client** to add new RADIUS client, and then you can start using this function.

C

SNMP Agent with MIB II

CN2610 has a built in Simple Network Management Protocol agent software. It supports cold/warm start trap, line up/down trap and RFC 1213 MIB-II. The following table lists the standard MIB-II group, as well as the variable implementation for CN2610.

Supported SNMP variables

System MIB	Interfaces MIB	IP MIB	ICMP MIB
SysDescr	itNumber	ipForwarding	IcmpInMsgs
SysObjectID	ifIndex	ipDefaultTTL	IcmpInErrors
SysUpTime	ifDescr	ipInreceives	IcmpInDestUnreachs
SysContact	ifType	ipInHdrErrors	IcmpInTimeExcds
SysName	ifMtu	ipInAddrErrors	IcmpInParmProbs
SysLocation	ifSpeed	ipForwDatagrams	IcmpInSrcQuenchs
SysServices	ifPhysAddress	ipInUnknownProtos	IcmpInRedirects
	ifAdminStatus	ipInDiscards	IcmpInEchos
	ifOperStatus	ipInDelivers	IcmpInEchoReps
	ifLastChange	ipOutRequests	IcmpInTimestamps
	ifInOctets	ipOutDiscards	IcmpTimestampReps
	ifInUcastPkts	ipOutNoRoutes	IcmpInAddrMasks
	ifInNUcastPkts	ipReasmTimeout	IcmpOutMsgs
	ifInDiscards	ipReasmReqds	IcmpOutErrors
	ifInErrors	ipReasmOKs	IcmpOutDestUnreachs
	ifInUnknownProtos	ipReasmFails	IcmpOutTimeExcds
	ifOutOctets	ipFragOKs	IcmpOutParmProbs
	ifOutUcastPkts	ipFragFails	IcmpOutSrcQuenchs
	ifOutNUcastPkts	ipFragCreates	IcmpOutRedirects
	ifOutDiscards	ipAdEntAddr	IcmpOutEchos
	ifOutErrors	ipAdEntIfIndex	IcmpOutEchoReps
	ifOutQLen	ipAdEntNetMask	IcmpOutTimestamps
	ifSpecific	ipAdEntBcastAddr	IcmpOutTimestampReps
		ipAdEntReasmMaxSize	IcmpOutAddrMasks
		IpNetToMediaIfIndex	IcmpOutAddrMaskReps
		IpNetToMediaPhysAddress	
		IpNetToMediaNetAddress	
		IpNetToMediaType	
		IpRoutingDiscards	

UDP MIB	TCP MIB	SNMP MIB
UdpInDatagrams	tcpRtoAlgorithm	snmpInPkts
UdpNoPorts	tcpRtoMin	snmpOutPkts
UdpInErrors	tcpRtoMax	snmpInBadVersions
UdpOutDatagrams	tcpMaxConn	snmpInBadCommunityNames
UdpLocalAddress	tcpActiveOpens	snmpInASNParseErrs
UdpLocalPort	tcpPassiveOpens	snmpInTooBigs
	tcpAttempFails	snmpInNoSuchNames
Address Translation MIB	tcpEstabResets	snmpInBadValues
AtIfIndex	tcpCurrEstab	snmpInReadOnlys
AtPhysAddress	tcpInSegs	snmpInGenErrs
AtNetAddress	tcpOutSegs	snmpInTotalReqVars
	tcpRetransSegs	snmpInTotalSetVars
	tcpConnState	snmpInGetRequests
	tcpConnLocalAddress	snmpInGetNexts
	tcpConnLocalPort	snmpInSetRequests
	tcpConnRemAddress	snmpInGetResponses
	tcpConnRemPort	snmpInTraps
	tcpInErrs	snmpOutTooBigs
	tcpOutRsts	snmpOutNoSuchNames
		snmpOutBadValues
		snmpOutGenErrs
		snmpOutGetRequests
		snmpOutGetNexts
		snmpOutSetRequests
		snmpOutGetResponses
		snmpOutTraps
		snmpEnableAuthenTraps

D

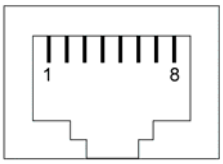
Pin Assignments and Cable Wiring

- **Pin Assignments**
  - 10/100BaseTX Port Pin Assignment
  - Console Port Pin Assignment
  - Async RS-232 Port Pin Assignment
- **Cable Wiring**
  - 10/100BaseTX Port Cable Wiring
  - Async RS-232 Port Cable Wiring
  - DB9 amd DB25 Connector Pin Assignment

Pin Assignments

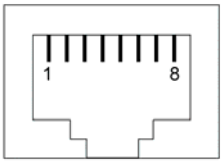
10/100BaseTX Port Pin Assignment

Pin	Signal
1	Tx+
2	Tx-
3	Rx+
6	Rx-



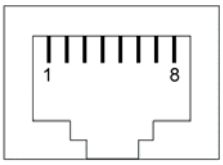
Console Port Pin Assignment

Pin	RS-232
1	DSR (in)
2	RTS (out)
3	GND
4	TxD (out)
5	RxD (in)
6	DCD (in)
7	CTS (in)
8	DTR (out)



Async RS-232 Port Pin Assignment

Pin	RS-232
1	DSR (in)
2	RTS (out)
3	GND
4	TxD (out)
5	RxD (in)
6	DCD (in)
7	CTS (in)
8	DTR (out)

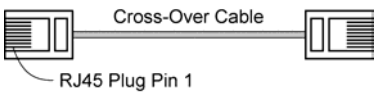


Cable Wiring

10/100BaseTX Port Cable Wiring

Cable Wiring

3	3
6	6
1	1
2	2

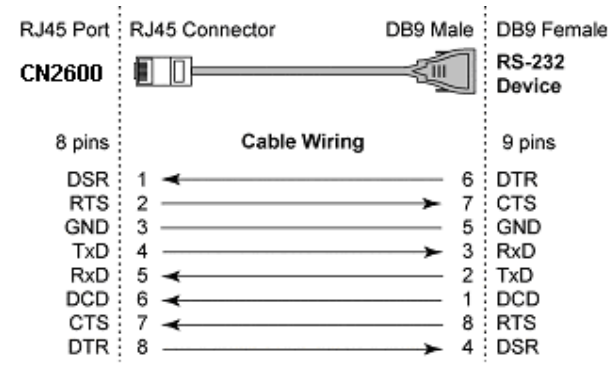


Cable Wiring

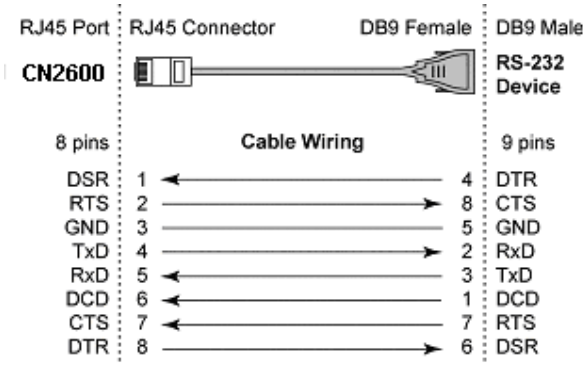
3	1
6	2
1	3
2	6

Async RS-232 Port Cable Wiring

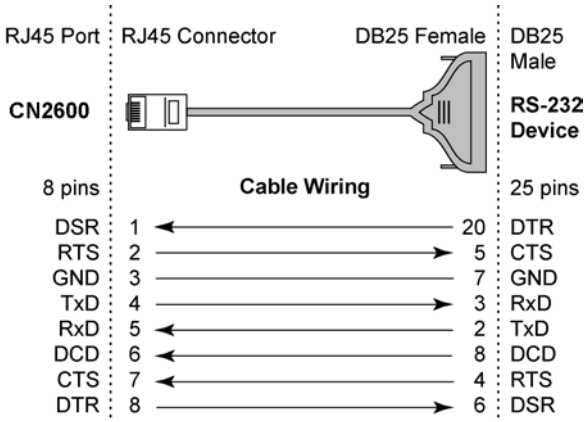
RJ45 (8 pins) to DB9 Male for CN2610



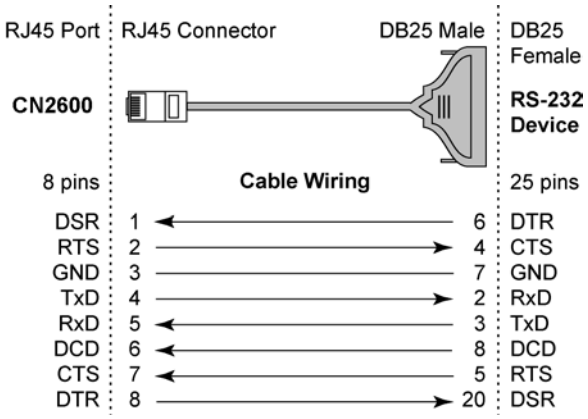
RJ45 (8 pins) to DB9 Female for CN2610



RJ45 (8 pins) to DB25 Female for CN2610



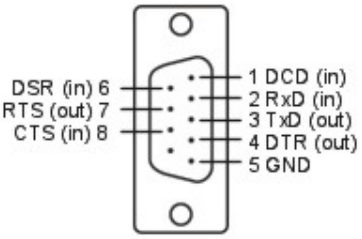
RJ45 (8 pins) to DB25 Male for CN2610



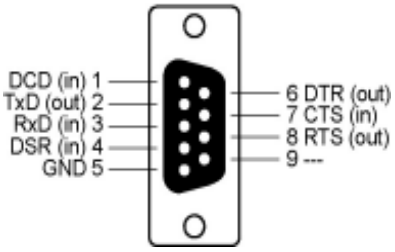
DB9 and DB25 Connector Pin Assignment

DB9 Connector Pin Assignment

DB9 Male Connector

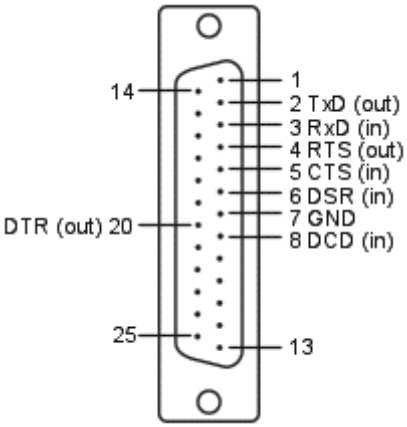


DB9 Female Connector

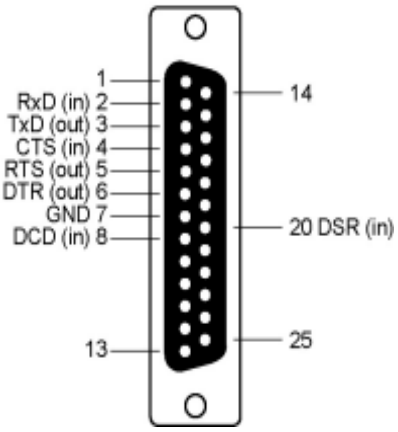


DB25 Connector Pin Assignment

DB25 Male Connector



DB25 Female Connector



E

LCM Display

We recommend using LCM display and four push buttons to configure the IP address at the first time installation.

Basic Operation

If the CN2610 is working properly, the LCM panel will display a green color. The red Ready LED will also light up, indicating that the CN2610 is receiving power. After the red Ready LED turns to green, you will see a display similar to:

C	N	2	6	1	0	-	1	6	_	0	3				
1	9	2	.	1	6	8	.	1	2	7	.	2	5	4	

This is where

- CN2610-16 is the CN2610's name
- 03 is the CN2610's serial number
- 192.168.127.254 is the CN2610's IP address

There are four push buttons on CN2610's nameplate. Going from left to right, the buttons are:

Button	Name	Action
MENU	menu	activates the main menu, or returns to an upper level
△	up cursor	scrolls up through a list of items shown on the LCM panel's second line
▽	down cursor	scrolls down through a list of items shown on the LCM panel's second line
SEL	select	selects the option listed on the LCM panel's second line

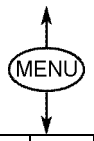
The buttons are manipulated in a manner similar to the way a modern cellular phone operates. As you move through the various functions and setting options, note that the top line shows the current menu or submenu name, and the bottom line shows the submenu name or menu item which is activated by pressing the SEL button.

Detailed Menu Options

The best way to explain all of CN2610's LCM functions is to refer to the tree graph shown in the next page. There are three main levels—1, 2, and 3—with each level represented by a separate column.

The first thing to remember is that the MENU button is used to move back and forth between the LCM panel's default screen, and main menu screen:

C	N	2	6	1	0	-	1	6	_	0	3				
1	9	2	.	1	6	8	.	1	2	7	.	2	5	4	



M	a	i	n		M	e	n	U							
S	e	r	v	e	r		s	e	t	t	i	n	g		↓

In addition, you only need to remember to:

- Use the SEL button to move up one level (i.e., left to right on the tree graph)
- Use the MENU button to move down one level (i.e., right to left on the tree graph)
- Use the cursor keys, △ and ▽, to scroll between the various options within a level (i.e., up and down on the tree graph).

As you use the buttons to operate the LCM display, you will notice that with very few exceptions, moving up one level causes the bottom line of the display to move to the top line of the display. You will also notice that the bottom three options in level 2, and all of the options in level 3 have either a C or D attached.
The meaning is as follows:

- C = configurable
  I.e., you are allowed to change the setting of this option
- D = display only
  I.e., the setting for this option is displayed, but it cannot be changed (this does NOT necessarily mean that the number doesn't change; only that you can't change it)

Main Menu			
	Server setting	Serial number	*D*
		Server name	*C*
		Firmware ver	*D*
		Model name	*D*
	Network setting	Ethernet status	*D*
		MAC address	*D*
		IP config	*C*
		IP address	*C*
		Netmask	*C*
		Gateway	*C*
		DNS server 1	*C*
		DNS server 2	*C*
	Serial set	Select port	*C*
		Baud rate	*C*
		Data bit	*C*
		Stop bit	*C*
		Parity	*C*
		Flow control	*C*
		Tx/Rx fifo	*C*
		Interface	*C*
		Tx/Rx bytes	*D*
		Line status	*D*

The part of the LCM operation that still requires some explanation is how to edit the configurable options. In fact, you will only encounter two types of configurable options.

The first type involves entering numbers, such as IP addresses, Netmasks, etc. In this case, you change the number one digit at a time. The up cursor (△) is used to decrease the highlighted digit, the down cursor (▽) is used to increase the highlighted digit, and the sel button is used to move to the next digit. When the last digit has been changed, pressing sel simply enters the number into CN2610's memory.

The second type of configurable option is when there are only a small number of options from which to choose (although only one option will be visible at a time). Consider the Parity attribute under Serial set as an example. Follow the tree graph to arrive at the

following Parity screen. The first option, None, is displayed, with a down arrow all the way to the right. This is an indication that there are other options from which to choose.

P	a	r	i	t	y										
N	o	n	e												↓

Press the down cursor button once to see Odd as the second option.

P	a	r	i	t	y										↑
O	d	d													↓

Press the down cursor button again to see Even as the third option.

P	a	r	i	t	y										↑
E	v	e	n												↓

Press the down cursor button again to see Space as the fourth option.

P	a	r	i	t	y										↑
S	p	a	c	e											↓

Press the down cursor button yet again to see the last option, Mark.

P	a	r	i	t	y										↑
M	a	r	k												

To choose the desired option, press the SEL button when the option is showing on the screen.

F

Service Information

This appendix shows you how to contact Moxa for information about this and other products, and how to report problems.

In this appendix, we cover the following topics.

- **MOXA Internet Services**
- **Problem Report Form**
- **Product Return Procedure**

MOXA Internet Services

Customer satisfaction is our number one concern, and to ensure that customers receive the full benefit of our products, Moxa Internet Services has been set up to provide technical support, driver updates, product information, and user's manual updates.

The following services are provided

E-mail for technical support ..... support@moxa.com.tw

World Wide Web (WWW) Site for product information:

..... http://www.moxa.com

Problem Report Form

MOXA CN2610 Series

Customer name:	
Company:	
Tel:	**Fax:**
Email:	**Date:**

1. **Moxa Product:** ☐ CN2610-8 ☐ CN2610-16 ☐ CN2610-8-48V ☐ CN2610-16-48V
2. **Serial Number:** _____

Problem Description: Please describe the symptoms of the problem as clearly as possible, including any error messages you see. A clearly written description of the problem will allow us to reproduce the symptoms, and expedite the repair of your product.

Product Return Procedure

For product repair, exchange, or refund, the customer must:

- Provide evidence of original purchase.
- Obtain a Product Return Agreement (PRA) from the sales representative or dealer.
- Fill out the Problem Report Form (PRF). Include as much detail as possible for a shorter product repair time.
- Carefully pack the product in an anti-static package, and send it, pre-paid, to the dealer. The PRA should be visible on the outside of the package, and include a description of the problem, along with the return address and telephone number of a technical contact.